

In This Issue—*Used Car Selling*

# MOTOR AGE

Vol. XLVII  
Number 16

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CHICAGO, APRIL 16, 1925.

Thirty-five Cents a Copy  
Three Dollars a Year

**Did you ever notice  
the happy ring in a  
man's voice when he  
says—"I drive a Great  
Jordan Line Eight"—**

**Ride in one—drive  
one and you will  
understand.**

*Edward S. Jordan*

President  
Jordan Motor Car Company  
Cleveland, Ohio

# What Happened To Mr. X

---

**M**R. X is a merchant who knows how to work.

In 1923, he financed and actively headed an automobile distributing company located in one of the most important territories in the United States.

The first year, he increased the sales of that car in his territory more than 500 per cent.

The second year, he believed, would mean real net profit. He confidently looked forward to many years of good business.

One day—it was just before the New Year—Mr. X received a most shocking letter from the factory.

It informed him that on the first

of the year the company would discontinue operations.

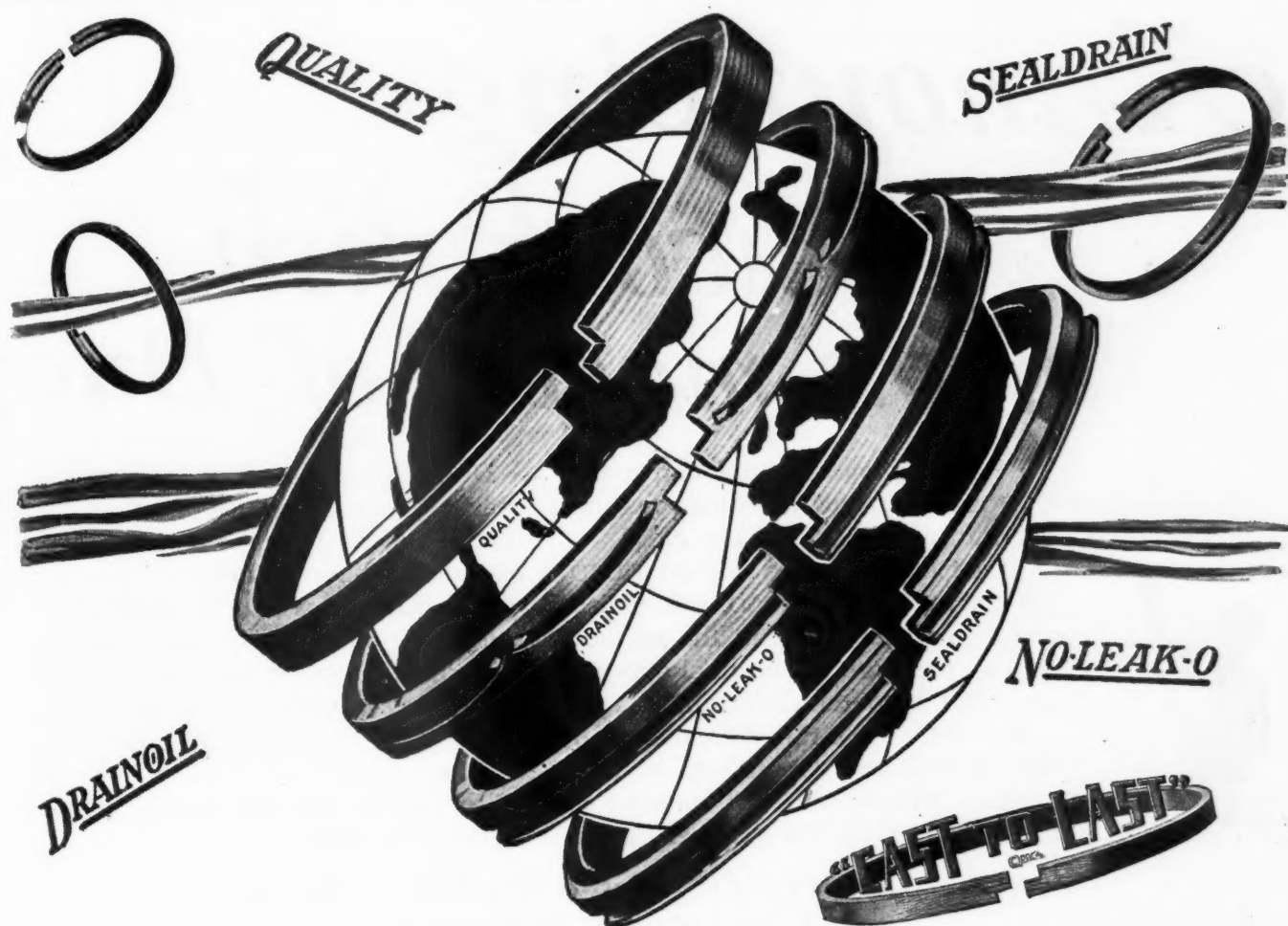
Mr. X sold out the stock of cars on hand at the customary “orphan” car prices.

\* \* \*

Mr. X had built well—but he had built his business structure upon the sand. Lost was all of his year’s effort, all of his advertising expenditure, practically all of his investment.

His experience shows that not only is it necessary to know how to merchandise and how to work; you must, likewise, “tie up” with a company whose past history is assurance of its continued future life and success.





Wherever you go, you invariably find the famous QUALITY BRAND piston Rings—QUALITY—DRAIN-OIL—NO-LEAK-O—SEALDRAIN.

These four rings, products of the largest, most modern and best servicing piston ring plant in the world, offer to Jobbers, Dealers, Regrinders, Garagemen, Overhaul and Repair Shops a line of piston rings to meet every possible requirement.

**QUALITY** rings—easy to install—quick seating—accurate—long lived and resilient, are specified for initial installation by more than 150 leading engine manufacturers. 2" to 4" diameter, 25c.

**DRAIN-OIL** rings with razor-edge and angle-cut oil relief slots, scrape and force surplus oil through holes drilled in lowest piston groove and back to crankcase. Installed only in lowest piston groove and used in combination with Quality or No-Leak-O rings for best results. Increase power, decrease carbon deposits and minimize crankcase dilution. Supplied in all sizes from 2" to 5" in diameter and priced from 50c to 75c.

**NO-LEAK-O** rings have the famous 45 degree angle groove which fills with oil and not only forms a packing against leakage and stops "oil pumping" but continually replenishes working surfaces with fresh clean oil. No-Leak-O piston rings are priced at 35c and up.

**SEALDRAIN** rings in addition to the right angle groove have a beveled top edge to reduce cylinder bearing portion and allow them to easily ride over the oil on cylinder wall. The oil packing in groove effectively forces excess oil back toward crankcase. Installed only in lowest piston groove and in combination with No-Leak-O or Quality makes a dependable oil controlling and regulating installation. Prices of Sealdrains range from 35c.

Write for price lists, discounts and complete information covering the popular QUALITY BRAND piston ring line with its 4,000,000 ring stock in 4,600 sizes. A guaranteed 24 hour shipping service.

Service Division

*The Piston*  
RING COMPANY

Muskegon, Michigan



# Announcing a Duco Polish by the makers of Duco

**I**F there is *anything* that can make DUCO finish even more lustrous and beautiful, it is DUCO POLISH No. 7.

Made expressly for use on DUCO by the makers of DUCO, this polish should be used to clean the surface and so preserve the original appearance of this matchless finish.

Stock DUCO POLISH. When applied and immediately removed, it is a cleaner. When rubbed it becomes a polish and brings out a higher lustre.

DUCO POLISH No. 7 is placed on the market by the pressure of public demand. It is the result of research and experiment directed to the production of a polish that would be superior in *every* way for use on DUCO finish. Naturally, the makers of DUCO would know how to make a *better* polish for DUCO, and DUCO POLISH No. 7 is the result.

Stock DUCO POLISH No. 7. It keeps DUCO finish *right!*



The Chemical Engineer—symbol of du Pont progress and leadership in the manufacture of products based on chemistry.

*Dealers and jobbers write for additional information*

**E. I. DU PONT DE NEMOURS & CO., Inc.**  
Chemical Products Division, Parlin, N. J.

Every one of the million owners of cars finished or re-finished with DUCO will want DUCO Polish.

**DU PONT**

**7**

**POLISH**

E. I. DU PONT DE NEMOURS CO., INC.  
CHEMICAL PRODUCTS DIVISION  
PARLIN, N. J. U. S. A.

# MOTOR AGE

Reg. U. S. Pat. Office

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C. A. MUSSELMAN  
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J. S. HILDRETH, Director of Sales  
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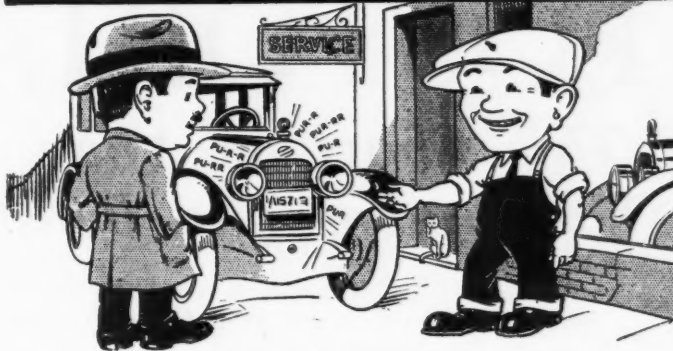
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Subscriptions accepted only from the Automotive Trade  
Entered as Second Class Matter Sept. 19, 1899, at the Post Office at Chicago, Ill., under Act of March 6, 1879.



## Ready to Go and Sooner

Many a car owner slips back into his seat and drives away hours—yes, and many times days sooner because there is a Watkins Re-babbitting Service plant nearby from which garages and car dealers can get connecting rods for any car rebabbitted in a hurry.

With the heavy travel months approaching, it will be well for you to keep Watkins Re-babbitting Service in mind as the logical place to send all your connecting rods for rebabbitting and rebuilding.

There is a profit provided for users of Watkins Re-babbitting Service, aside from enabling you to serve the car owner well.

**WATKINS**  
*Complete* REBABBITTING  
SERVICE

## Send Parts to Factory Nearest You for Quickest Service

Chicago, Ill., 57-61 E. 24th St.....	Bergusson-Skinner Corporation
Cleveland, Ohio, 5020 Euclid Ave.....	Coful Auto Parts Co.
Dallas, Texas, 3001 Commerce St.....	Lawrence Process Co.
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Washington, D. C., 1628 L St., N. W.....	R-L Motive Parts, Inc.
Waterloo, Ia.....	All States Re-babbitting Service
Wichita, Kansas, Home Office.....	Watkins Manufacturing Co.

Authorized Exclusively by Buick Motor Co.,  
to Re-babbit and Rebuild Buick Rods.



Replace with

# FOSTORIA FENDERS

*This Chart on Your Wall Will  
Save Labor and Boost Profits*

**P**UT the Fostoria Wall Chart where everyone will see it, and your fender replacement sales will start to grow.

There is less labor in putting on a new Fostoria Fender, and more profit in selling it, than in hammering out an old one. And you have the satisfaction of delivering a job you'll be proud of.

The chart lists all makes of Fostoria Fenders with parts numbers and full details. It also

lists, at the bottom, the names and addresses of all Fostoria distributors, so you can order from the one nearest you and be sure of immediate delivery.

When a motorist drives in with a damaged fender and sees that you can replace it quickly with a bright new Fostoria, he'll want one put on. The chart is a persuasive salesman.

Mail the coupon now and get your free copy. It will come to you in a special mailing tube.

## DISTRIBUTORS

We have a plan of profitable interest to distributors in unoccupied territory. If you want the details just write on margin of coupon "Send distributor plan."


## THE FOSTORIA PRESSED STEEL CO.

Department A  
FOSTORIA, OHIO









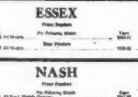
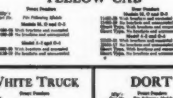
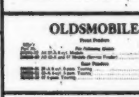



### REPLACE DAMAGED FENDERS

With  
**FOSTORIA Quality FENDERS**

Ample Stocks of Replacement



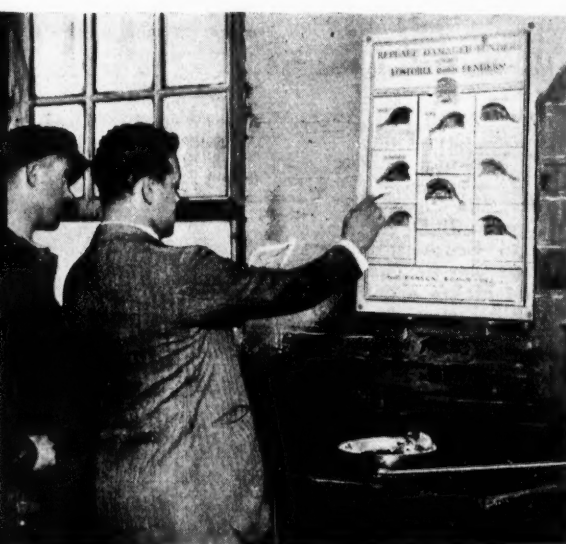
Fenders for Immediate Delivery

<b>HUPMOBILE</b>  Fender Details Price \$10.00 Part No. 12345	<b>BUICK</b>  Fender Details Price \$12.00 Part No. 67890	<b>STUDEBAKER</b>  Fender Details Price \$11.00 Part No. 54321
<b>CHANDLER</b>  Fender Details Price \$9.00 Part No. 98765	<b>CADILLAC</b>  Fender Details Price \$13.00 Part No. 21098	
<b>JORDAN</b>  Fender Details Price \$8.00 Part No. 34567	<b>DODGE</b>  Fender Details Price \$10.50 Part No. 76543	<b>JEWETT</b>  Fender Details Price \$7.00 Part No. 87654
<b>ESSEX</b>  Fender Details Price \$6.00 Part No. 43210	<b>YELLOW CAB</b>  Fender Details Price \$11.50 Part No. 09876	<b>OLDSMOBILE</b>  Fender Details Price \$9.50 Part No. 10987
<b>NASH</b>  Fender Details Price \$7.50 Part No. 56789	<b>WHITE TRUCK</b>  Fender Details Price \$12.50 Part No. 21098	<b>CHEVROLET</b>  Fender Details Price \$10.00 Part No. 34567

**FOSTORIA FENDER DISTRIBUTORS FOR SALE HERE**

**FOSTORIA FENDER DISTRIBUTORS**

Manufactured by THE FOSTORIA PRESSED STEEL COMPANY, FOSTORIA, OHIO, U.S.A.



### CLIP AND MAIL COUPON TODAY

The Fostoria Pressed Steel Co.  
Dept. A, Fostoria, Ohio.

Please send me a free copy of the Fostoria Fender Chart.

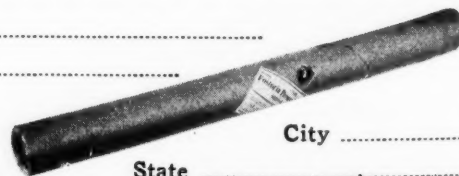
Name .....

Address .....

Dept. A

State .....

City .....





# STUDEBAKER

The only cars which combine the advantages of the open car with those of the enclosed car are the Studebaker Duplex models—and they sell at strictly *open-car prices*. Another reason why Studebaker dealers are meeting with such extraordinary success. ~ ~

STANDARD SIX		SPECIAL SIX		BIG SIX	
3-Pass. Duplex-Roadster	\$1125	4-Pass. Duplex-Roadster	\$1495	7-Pass. Duplex-Phaeton	\$1875
5-Pass. Duplex-Phaeton	1145	5-Pass. Duplex-Phaeton	1495	5-Pass. Coupe	2450
5-Pass. Coach	1295	4-Pass. Sport Roadster	1645	5-Pass. Brougham	2575
3-Pass. Country Club Coupe	1345	5-Pass. Coach	1595	7-Pass. Sedan	2575
5-Pass. Coupe	1445	4-Pass. Country Club Coupe	1695	7-Pass. Berline	2650
5-Pass. Brougham	1465	5-Pass. Brougham	1795	Note: Standard Six—4-wheel brakes, 4 disc wheels . . \$60 extra Special Six—4-wheel brakes, 5 disc wheels . . \$75 extra Big Six—4-wheel brakes, 5 disc wheels . . \$75 extra	
5-Pass. Sedan	1595	4-Pass. Victoria	1895		
5-Pass. Berline	1600	5-Pass. Sedan	2045		
		5-Pass. Berline	2060		

*Prices f. o. b. factories*

THE STUDEBAKER CORPORATION OF AMERICA, SOUTH BEND, INDIANA

T H I S   I S   A   S T U D E B A K E R   Y E A R

**STUTZ MOTOR CAR COMPANY**  
**OF AMERICA, INC.****INDIANAPOLIS, IND., U.S.A.**

Cable Address "STUTZ"

April 16, 1925.

**DIRECTORS**  
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HICKS A. WEATHERBEE  
WILLARD A. MITCHELL  
WALTER C. JANNEY  
ANTHONY CASSIDY  
FREDRICK E. MOSKOVICS

Mr. Edward T. Shephard,  
Shephard Motor Sales Co.,  
Memphis, Tenn.

My dear Mr. Shephard:

Your question is as old as the hills. What discount should an automobile dealer receive? You might as well ask the age of Anne. I can give you splendid arguments on both sides of the question.

After all, the problem is not "What is the discount?" but, "Is the discount sufficient in view of the merchandise-ability of the particular product in question, to give the dealer an opportunity to pay all his fixed expenses and leave him a profit of at least 5 percent on his turnover?"

You well know that I have spent a great portion of my life in the field with the dealer. I believe I know the economics of his business. We have shaped the policy of this company to fit in with the dealer's scheme of business, provided he is a reasonably sound business man and knows how to make a profit when the opportunity presents itself.

There are many things in my opinion beyond the discount; I believe we have them in this Stutz line, and I am not talking of the mechanics of the car. Some of these factors go to the very fundamentals of the business. I will be glad to tell you about them if you are interested.

Just write me and tell me your whole situation: What are your facilities to handle this car? Will you need additional overhead? Will you need additional capital? - and I will pretty well tell you what are the possibilities for both sales and profits.

Sincerely yours,

STUTZ MOTOR CAR COMPANY OF AMERICA, INC.

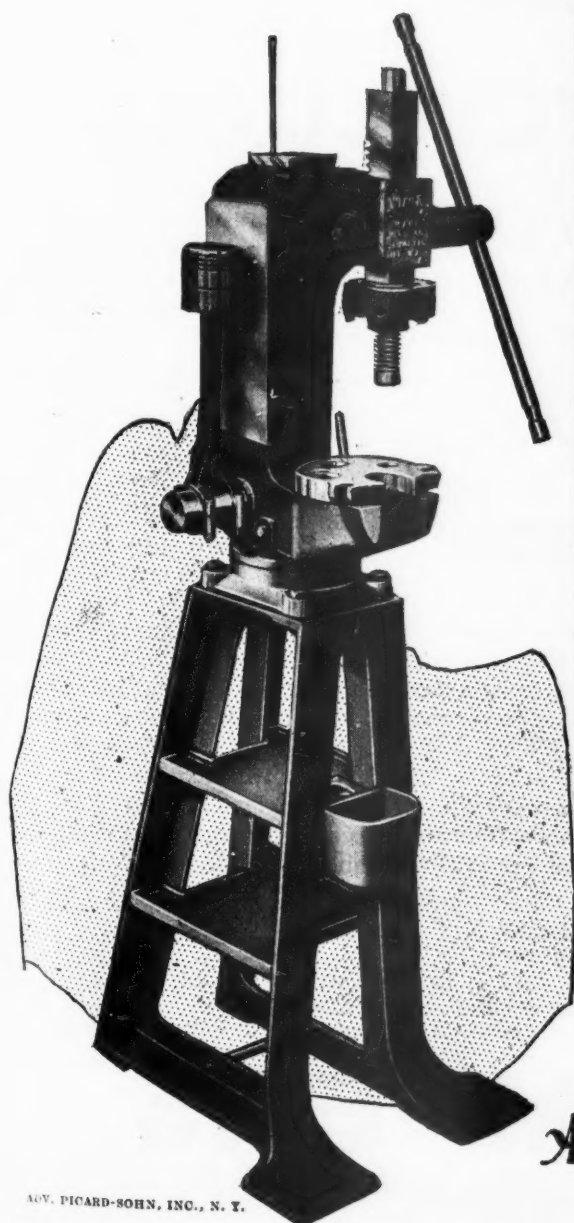
*F. E. Moskovich*  
President.

Suppose this letter is addressed to YOU. It is an actual letter with name and address changed. I'll be glad to have YOUR answer.—Fredrick E. Moskovich, President, STUTZ MOTOR CAR COMPANY OF AMERICA, INC., Indianapolis, Ind.

*Is your repair work  
growing by the minute?*

# WEAVER

## MOTOR SERVICE PRESS



If you want service work to keep coming to the shop, you need a good press to handle it. Here's one—not expensive, either—handles light pressure and straightening work up to five tons—and performs a dozen other duties in motor reconditioning.

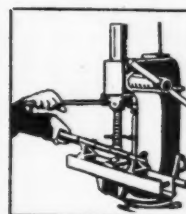
It aligns pistons, straightens shafts, performs brake relining service and fits connecting rod assemblies complete, including straightening and broaching. A rapid reliner of all brake bands, too—or Ford Transmissions.

The Weaver Motor Service Press supplies all the tools mentioned, at a fraction of what they'd cost if bought separately. Just the equipment for a growing shop.

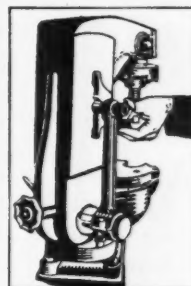
**Weaver Manufacturing Co.**  
Springfield, Illinois, U. S. A.  
**Weaver Canadian Company, Ltd.**  
Chatham, Ontario



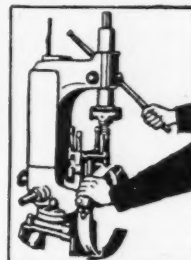
Any further information you'd like?  
Just drop a line. You're Welcome!



STRAIGHTENING  
HEAVY WORK



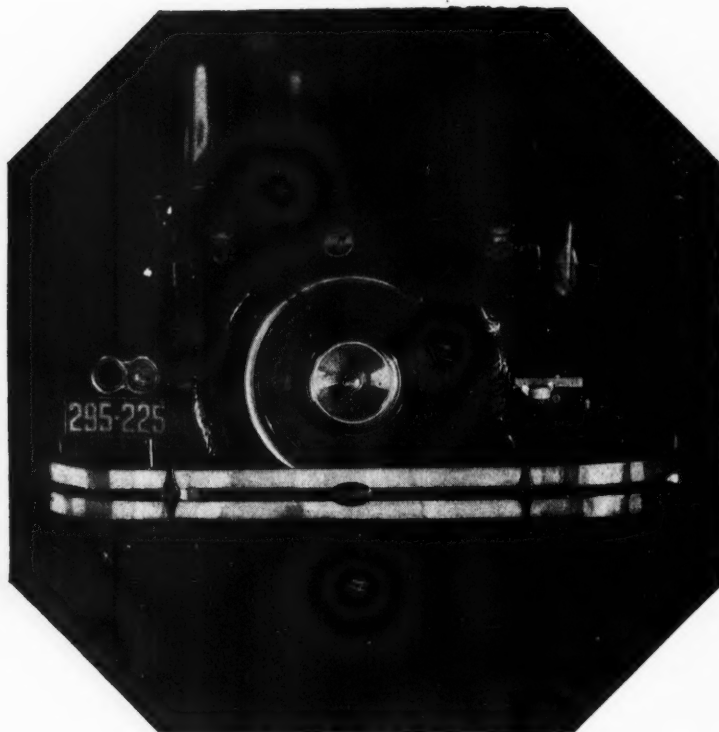
ALIGNING CON-  
NECTING RODS



RELINING  
BRAKES

*Ask your Jobber's Salesman  
He's our field representative*





## for better rear protection

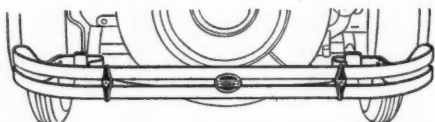
Here's a plan view of WEED Sentry B, shown on the car above. It's a rear bar. Note the wide space for a spare without undue distance between ends of the bar and the fenders.

**WEEDS are beautiful, easily attached, in spite of trunk and tire racks**

*between the spare tire and the fenders. WEEDS do this. The Fender Guards are easily*

adjustable, strong and quickly attached.

Ask for folder of the new WEED Fender Guards showing models on various medium weight and heavy cars, and explaining WEED Fittings.



And here's a WEED Sentry Three-bar, with the same deep curve. These correctly designed WEED rear bars give better protection with better appearance.



WEED has given the same care to design of fender guards. Of course, you appreciate what WEED found out early about Fender Guard design—they look best and protect best when they *practically fill the triangular space*



Most front bars are fairly easy to attach. It's the rear bumper that presents difficulties these days. You'll appreciate how carefully WEED Fittings have been planned the first time you put on a WEED rear bar. Ask your jobber to send you the WEED Bumpers we recommend for the cars that you are particularly interested in. Put them on the car, front and rear. You'll sell WEEDS from then on.



**AMERICAN CHAIN COMPANY, Inc.**  
BRIDGEPORT, CONNECTICUT

In Canada: DOMINION CHAIN COMPANY, Limited, Niagara Falls, Ontario  
District Sales Offices: Boston Chicago New York Philadelphia Pittsburgh San Francisco

# WEED BUMPERS

*Sensible Protection Fore and Aft*

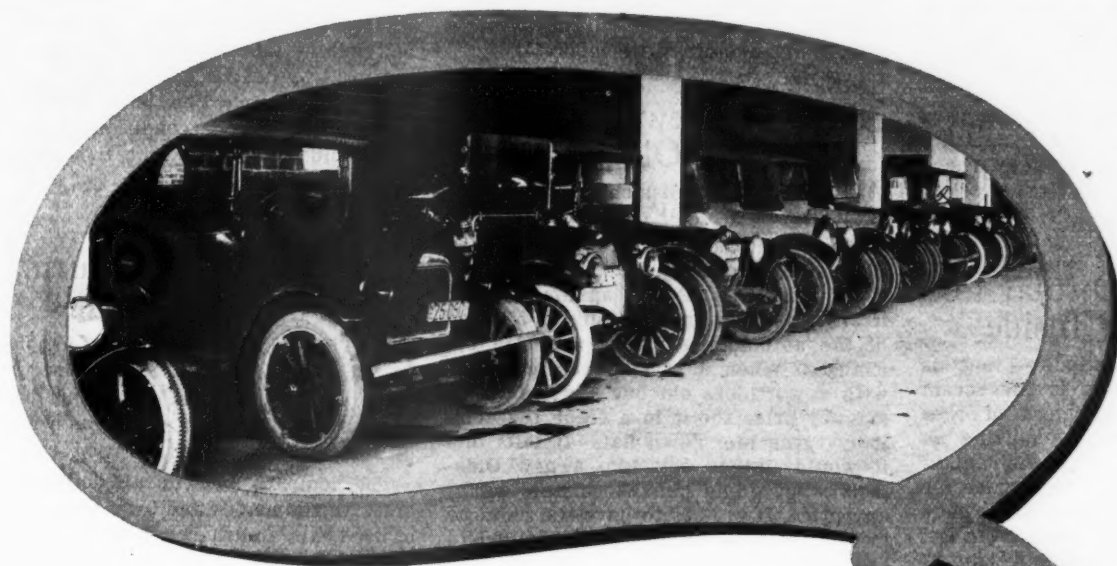


# MOTOR AGE

Vol. XLVII

Chicago, April 16, 1925

No. 16



See Used  
Car  
Articles  
on  
Pages  
10  
&  
11

## Move the Used Cars

**A** FACTORY is urging its dealers to make a concentrated drive now to move their used cars.

It points out something which every automobile merchant knows: that March, April and May are the best months in which to clean up the used-car inventory. By the first of June, it says, dealers' used-car stocks should be at rock bottom.

The time for permitting the accumulation of used cars to grow has passed. In the winter there was little to do but take in many cars, especially open models, and store them until a more favorable selling time.

And that more favorable time has arrived.

In fact, only a month and a half of this best period for selling used cars remains. March is gone and half of April is gone.

How are you going to capitalize this remaining time?

Many enterprising dealers are capitalizing this period by intense campaigning. They are putting additional sales pressure behind used cars. They are combing over their territories for used-car prospects. They are staging special displays in the open air where the cars can't be overlooked by the public. They are running special advertisements in the newspapers and resorting to other devices of the merchandising craft.

These dealers are going to move their used-car stocks and any other dealer can do the same thing by pursuing similar methods.

Move the used cars.



# Random Items on Used Car Selling

## Present Owners Are Used Car Prospects

BY keeping its salesmen continuously on the trail of used car prospects a large Gardner and Sterling-Knight distributor finds little difficulty in keeping used cars from accumulating on its hands. "We get the names of used car prospects from our present owners and our salesmen canvass these prospects personally by mail and by telephone at regular intervals until they sell them, or until hope of selling them dies," said one of its executives.

"We also sell a good many used cars by watching the papers and by getting in touch right away with owners whose cars may have been stolen or wrecked in accidents," he added.

## An Outdoor Display to Bring Buyer Inside

AN outdoor display window that is bringing in the bacon is the recent achievement of the managers of New Orleans Buick Company. Acquiring an old building at the side of their plant and demolishing it, they found space for a shed for a service department. They threw a fence across the front of the lot, providing for an inset, just sufficient to give space for two cars. The fence back of this space is lettered conspicuously:

"Watch This Space for Used Car Values."

During the day the company keeps a salesman out near the front of the lot so that he can engage visitors in conversation. Once this is done, it is natural for him to interest them in used cars in the used car department.

"One of the problems of the used car business is in getting prospects in to look about," the sales manager of this company said. "Our outdoor display space attracts their attention, and then it is easy for us to get them upstairs. In the one month that we have used this outdoor attraction, we have sold 14 used cars that we can attribute directly to the pulling power of the display—equal to about \$250 of newspaper advertising with us and infinitely cheaper, because all it cost was about \$25 worth of paint, a little lumber and a little labor."

## Keeping New Car Beats Selling Old Junk

A PROMINENT Oldsmobile agency says it has no used car problem to solve.

Three years ago the company adopted the policy of taking in exchange only good, salable cars. It has found little, if any, difficulty in disposing at a profit of the automobiles it has taken in exchange. When a prospect comes along with a worthless old bus and insists on a fancy price for it in a trade the company turns him down flat. It tells him it would like to sell him a new Oldsmobile but would not take his old car at any price. It prefers to have the new car in stock rather than to be compelled to sell some old car that has seen its best days not to speak of its best nights.

"We are in the business of selling new rather than used cars," was the way one of the company's executives put it.

## Dealer Finds Profits in "Circus Method"

CIRCUS methods sell used Fords. One successful authorized Ford agent knows this from experience.

In the summer there was a vacant lot opposite this dealer's salesroom. The salesroom is on a main business thoroughfare. So was the vacant lot. The dealer rented the lot for the week and pitched a tent on it. In this tent in a circular form, like cages in a menagerie, he placed used Fords. In the center was a platform, where concerts were given evenings and where there were chairs for patrons, with Ford literature on tables. The lights and the music and the ballyhoo at the entrance attracted many patrons evenings and there was good day time patronage. The used Fords displayed had been reconditioned and all dolled up. By this stunt the company disposed of many used cars.

## Factory Gates Turn Out Many Buyers

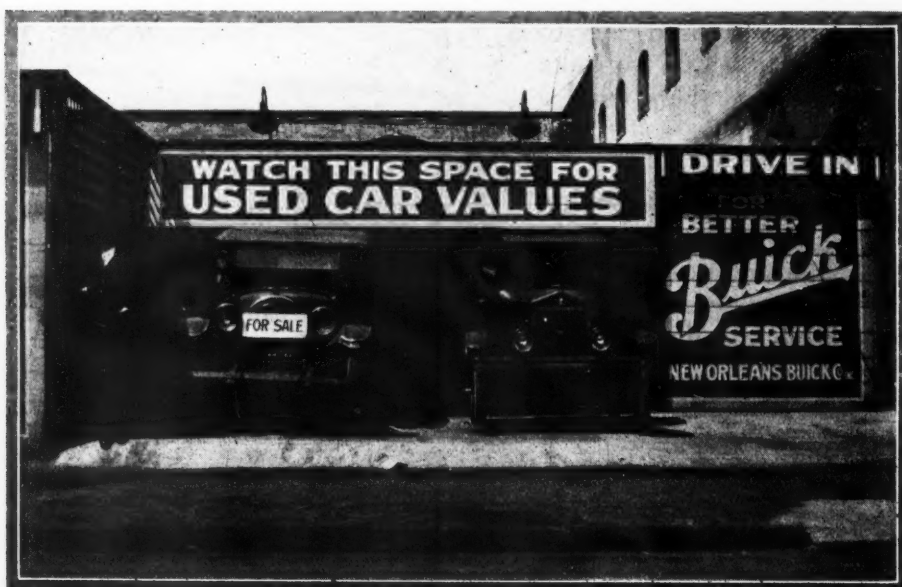
DISTRIBUTING dodgers to employees of industries, as they come from work, has been found efficacious by an enterprising Chandler agency as a means of interesting persons in used cars.

The company gets up attractive dodgers with the names and brief descriptions of used cars and their prices and stations salesmen at the gates of large factories. When the employees emerge they are given these dodgers. When opportunity permits the salesmen add a word or two in the way of inviting the recipients of the dodgers to come and see the used vehicles. The men, to whom the dodgers are presented, are for the most part well paid mechanics, capable of buying good used automobiles.

The company in selling such prospects tells them just what the cars are, and just what they may expect to get out of the automobiles in the way of service.

## Satisfaction, or Will Take Back Car

SALE of used cars is regarded as an opportunity to build good will by a thrifty distributor of the Hupmobile in New England. The firm also offers to take back any used car purchased if for any reason the buyer is not satisfied with his car, refunding the purchase price less \$3 a day for the time the car has been used, the minimum charge being \$30. The firm used a full page advertisement in an evening newspaper featuring this offer and printing four letters from buyers of used Hupmobiles. The company is just as fussy about a used car as a new one. Numbered in its files are many buyers who originally started out with a used car and returned for a new one by reason of the good deal experienced with the used car.



Outdoor display of New Orleans Buick Company from which point prospects are taken "Upstairs"





Open-air used-car market of Williams, McAllister & Weber, Fresno, California, from which were sold 731 used cars between January 1 and September 1, 1924, an average of three and one-half used cars for every one of the 212 working days in this period of time. The sign shown reads 630 cars, but this photo was made April 16, 1925

## Know the Demand A USED CAR SELLING STORY

**W**ILLIAMS, McALLISTER & WEBER, INC., Dodge dealers in Fresno, Cal., sold an average of three and one-half used cars for every one of the 212 working days between Jan. 1 and Sept. 1, 1924. The firm disposed of 731 used cars in that period, and the methods adopted by W. W. Carr, manager of the used-car department, to accomplish such unusual sales results are somewhat different from those usually applied by either new-car dealers or exclusive used-car concerns. Fresno is a city of rather less than 150,000 inhabitants, and is a central distributing point for the large and prosperous San Joaquin Valley.

Mr. Carr declares that an intimate knowledge of the local demand for and supply of used cars, based on close observation, is the principal factor back of the record sales for the eight months. Just as a grain merchant, or broker, or a produce dealer keeps at all times in close touch with the grain and produce demand and supply, so the automobile dealer must maintain constant and accurate knowledge of the "prospects" for used cars, the financial condition of these prospects, their need for transportation, their ability to pay for transportation, and the number and condition of the used cars being offered for sale in that territory, according to Mr. Carr.

### Two Departments Divorced

Complete separation of the used-car sales-place from the show and salesroom for new cars also is considered a factor in the success of the firm. New cars are housed in a fine building in one section of the business district of Fresno; the used cars are kept in a clean, ornamental, graveled lot, fenced, and located on a corner, in the center of another large business district. On this lot is a

small, compact, well-equipped sales office, while a large sign tells the number of cars sold to a given period. In Mr. Carr's opinion this sign is important. "Too few dealers," he says, "tell their customers and the public in general how good business is, how strong the firm is, and how many people are buying used cars from that firm. The prospect, seeing such a sign, says, 'Well, if a hundred men bought used cars from that fellow last month, he must sell pretty good used cars. Guess I'll look over his stock,' and there is a sale half made."

This open-air sales place is kept fully as attractive as many an indoor show and salesroom; loafers and corner idlers are barred strictly; ladies are made particularly welcome, and the cars are kept in the best of condition. The men under Mr. Carr in charge of this open-air used-car market are selected for their ability, first, to appraise any used car brought in at its exact value as it stands, and, second, to know what that car will be worth, as transportation, when reconditioned and placed on sale, to a prospective buyer. The cap sheaf of this stack of reasons, according to Mr. Carr, "is the

establishment of confidence, not only in the used cars sold, but in the name of the firm selling them."

Quick turnover is the objective to which the used-car department devotes its strength. Four used-car salesmen are employed exclusively in this department. They have nothing to do with new cars, and unless a buyer approaches them on the subject they make no attempt to sell new cars, except those on which a used car can be taken in. Any one of these salesmen is competent to appraise a used car at its real value to the house, not at its value as a factor in making the sale of a new car. On every purchase of a used car the condition of the local used-car market, the work to be done to put the car in the best possible condition, and the probabilities of a quick sale are taken equally into consideration.

Early in 1922 Williams, McAllister & Weber decided that in order to increase its used-car sales it would be necessary to increase its contact with that part of the public which buys used cars. The firm determined that this was as necessary as the expanding of its contact with buyers of new cars. The first step was to provide the open-air market as above described. The next step was the establishment of a system of rebuilding cars which would enable the sale of each used car to be the sale of so much transportation. Within six months after the inauguration of this new plan sales of used cars by this firm had increased 50 per cent. Display of 15 to 25 rebuilt used cars in the lot where all passersby could see them, rather than inside a building, is also given credit for a part of the sales.

### Reputation for Fair Dealing

The business is run throughout on the same plan as that of an automobile dealer handling new cars. Advertising in newspapers plays only a small part in the sales. Classified columns of the local newspapers are used to some extent, but display advertising is left almost exclusively to the new-car department. "The reputation for fair dealing, competent rebuilding of used cars, and strict adherence to truth in making sales," says Mr. Carr, "virtually has eliminated the necessity for extensive advertising to sell our used cars."

"The motto of the company," continues

(Continued on Page 34)



Headquarters of Williams, McAllister & Weber, Inc., where only new cars are sold, the used cars being handled entirely in an open-air market, operated by the firm. Mixture of new-car and used-car business is not good business, according to these dealers, of Fresno, California

# Reversed Magnets—How to Find Them

*Bill Fixit's Electricians  
Solve a Magnetic Problem  
Which Had Stumped the  
Local Experts*

By A. H. PACKER

COAL CITY is the center of a productive but turbulent community. On one side of the ridge which neatly divides Coal County are the mines operated by the Welsh, on the other the mines of the Coal Corporation. Immigrants, new to America and its ideals, find their way to Coal County and become producers for the corporation, at the same time stupid followers of any forceful leader.

Simon Sandovich was such a leader and Simon had called a strike among the corporation miners. Not content with that, he dispatched a man to the other side of the ridge demanding that the men there quit their jobs in sympathy. But Simon had failed to consider two important factors. One was Sandy MacMinn, the mechanical superintendent, the other his loyal crew.

## Crew Refuses to Quit

Take orders from a Russian or Pole? Not they. His crew had stuck to a man, guards were thrown around the camp, that no one might tamper with the machinery, but the night of the big storm some one had blundered.

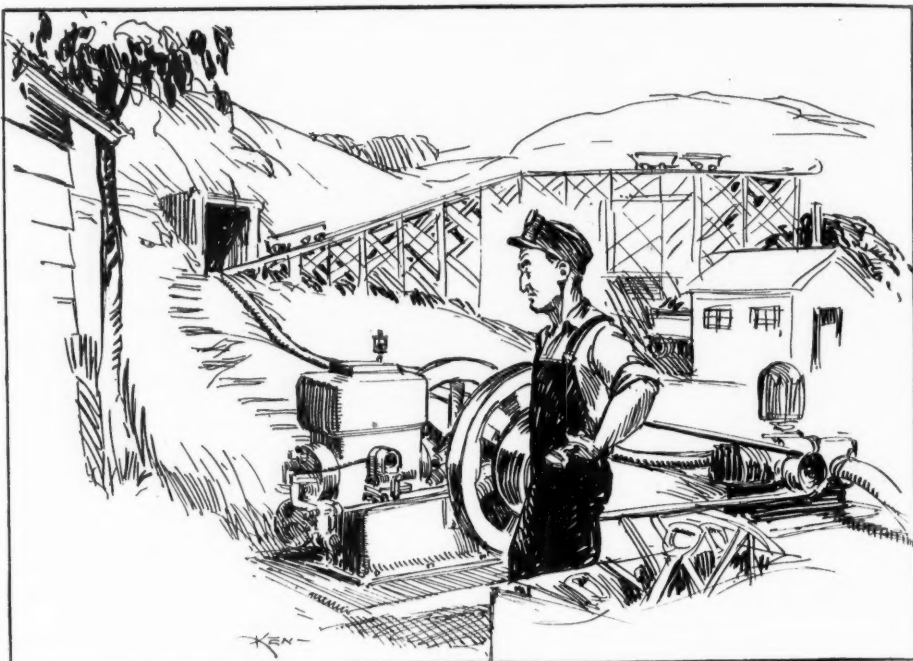
From across the ridge a big car had crept, lights out, illuminated but occasionally by flashes of lightning. At the same bridge where the Red Head and Valvy had come to a sudden halt, it also had stopped and two men, taking something carefully wrapped in oiled coverings, had sped through the woods toward the mines where the men had refused to quit.

Ten minutes later, as the car sped on its way back across the ridge, there were two dull detonations as dynamite charges wrecked the steam driven generator sets that supplied current for the motor-driven pumps. When Sandy reached the scene, the damage was done. The guard, stumbling back to his post from his improvised storm shelter, withered under Sandy's glance, but it was no time for wasted words.

"Call the A shift and man the emergency lift," cried Sandy, as he started to route out his foremen.

Jerry Dugan was next on the job, waiting orders.

"Put the B shift on the emergency pumps," shouted Sandy. "Crooked creek is rising fast and it looks as if we would be flooded by morning. That would mean all our pumping motors shorted and the mines out for a month." On through the night they toiled, but morning saw



*Sandy gave up after cranking for ten minutes*

the water gaining. The hand pumps had failed—power alone could win.

"We will have to try that devil of a gasoline outfit," thought Sandy. "Last time we tried it no one could get her started, but it's our only chance. If Jake Penders were only here." And the mine superintendent ordered the gasoline pumping set brought out from its hiding place in the storage shed and set up at the mouth of shaft No. 2.

Ten minutes later the doughty Scot gave up in disgust. "It's no use," he exclaimed, his breath coming fast from the exertion of spinning the stubborn machine. "I'm going after Jake, if I have to blast my way through a whole mob of

Poles." And taking a gun from one of the guards, Sandy was off through the brush.

As the car in which the Red Head and Valvy, Bill Fixit's adventurous electrician slid to a stop, Sandy repressed a smile. The apprehension on the faces of the two lads in the car was evident.

"It's no holdup, but you can help a lot if you will give me a lift to Coal City. I want to get an electrician there." And Sandy briefly recounted the incidents of the night and the stormy events that had led to the wrecking of the mine engines.

Valvy looked at Red and Red at Valvy.

"That's right in our line," said Red. "We work mostly on automobile electrical systems back in Westville. Just now we are working our way across the country on a sort of bumming trip, but if we can find out your trouble and fix it, it will be all in the day's work."

## A "Funny" Magneto

"Let's go," said Sandy. "Even if I get Jake, I'm not so sure about what he can do, for he had the whole outfit at his place six months ago, and when it came back, no one here could run it. If you can get that pump going and keep last night's storm from flooding the mine, we can certainly make it worth your while."

Valvy was all excited, but remembered to grab the kit of tools and testing equipment from under the duffle piled in the back of the car. "We might need a meter or something," he said. And Red nodded approval.

"Gee, that's a funny magneto. How in the dickens can it turn with those stiff springs holding it that way." The valve

## BILL FIXIT STORIES

### No. 3

Story No. 1 of this series by A. H. Packer was published in the March 19 issue, No. 2 in the April 2 issue.

**Synopsis:** The Red Head and Valvy, Bill Fixit's electrical trouble shooting men, go on a trip in a Speedway car. They stop at the Wobble Inn, a garage run by a young fellow named Joe, who discovers that some trouble they had on the road was due to dirt in the carburetor. Joe then takes advantage of their electrical knowledge, has them stay over night with him during a spring thunderstorm, and in the morning they give him some help on wiring of cars and buses. Leaving Joe they drive some twenty miles, where just as they are about to cross a bridge, they are stopped by a man with a sawed off shotgun.



grinding fiend was getting more education, but he took it hard.

"It doesn't need to turn much," said Red. "Those springs give the armature a quick turn, when that rod moves back and forth and works that lever that sticks down from the magneto armature.

"Now take off the wire at the spark plug," and Valvy started to obey, using one hand for the job while he leaned easily against the engine and steadied himself with the other.

Red grabbed the crank and gave it a quick turn, while Valvy continued undisturbed at his job on the wire. "Thought so," said Red. "You would have jumped over the ridge into the enemy camp if that mag wasn't clean plumb dead. Now take off the springs." With the springs off the Red Head felt of the lever on the armature shaft. It turned readily enough, in fact, too easily.

"Humph. No magnetism. Now I wonder." Red thought a minute. "Not so easy to charge 'em out here in the woods either, but perhaps we don't need to. Let's take the compass."

### A Reversed Magnet

Valvy dug through the tool kit, brought out the compass and held it quickly up to the side of the magneto, anxious to have his part in the trouble shooting job. Round and round spun the needle, vainly attempting to indicate the strong magnetic field to which it had been so suddenly subjected.

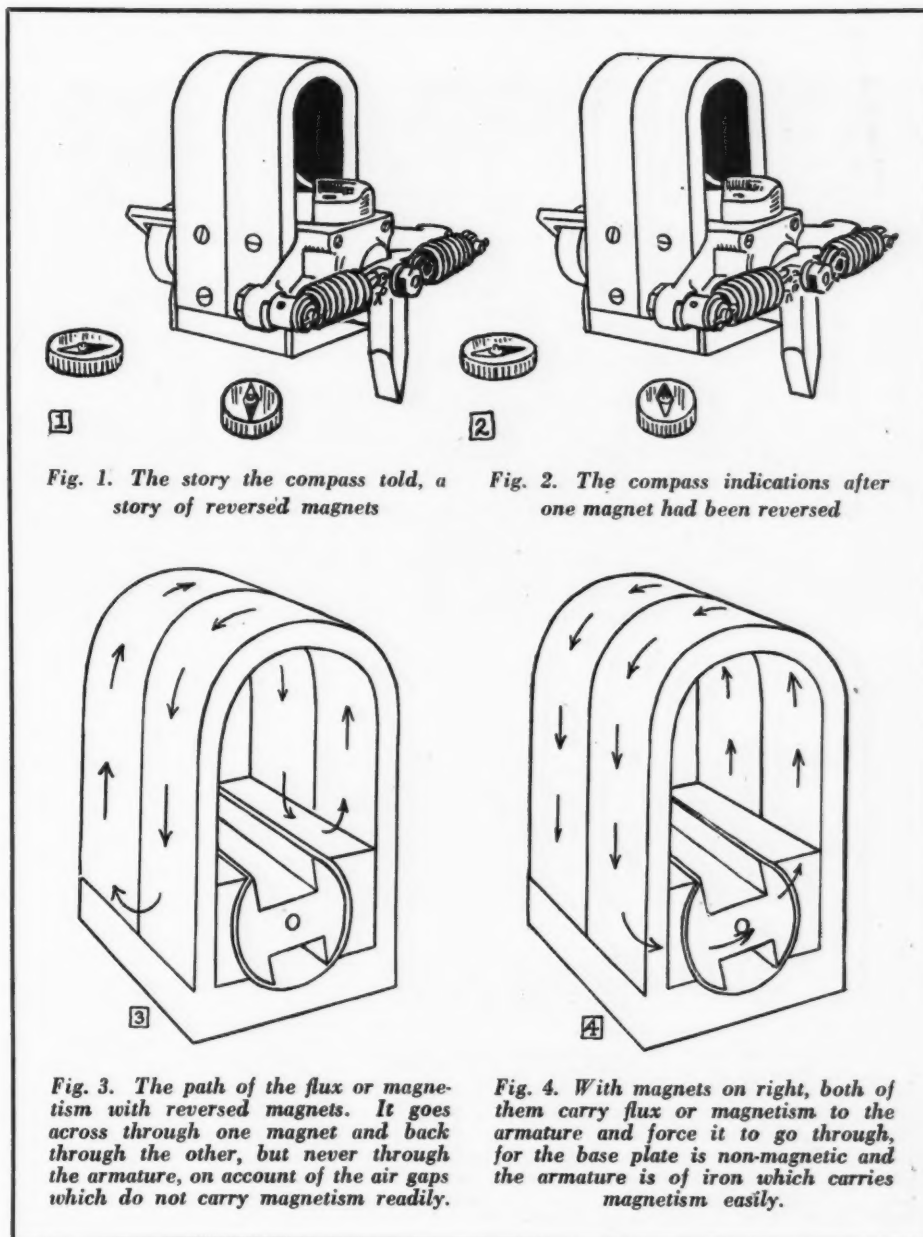
"Here, let me take it." And the Red Head, more careful than his enthusiastic helper, moved the compass slowly, first to one corner of the magneto, then to another. "Pretty soft. Just a reversed magnet. No wonder friend Jake at Coal City didn't have much luck getting the outfit to run."

Sandy, anxious for the fate of the mines and electrical machinery in them, was watching the testing process with no little interest. "Have ye hit on it, bye?" he wanted to know, when he could no longer restrain himself.

"I think so," said Red. "I'll show you in a few minutes, and Red, passing up the finer detail of using a keeper, slid one of the magnets up from poles, turned it and dropped it in place again, then grabbed the crank. First a sucking sound was the only sign of life, as air rushed through the carburetor, then a spitting and coughing. Next a steady chug, chug, as Sandy richened the mixture, and the engine settled down to its work as though glad to be back on the job again.

"Prime the pump, some of you birds," shouted Sandy, somewhat doubtful as to the effect idleness might have had, but before a bucket could be brought, the first spasmodic burst of inky water rushed from the mouth of the hose. Relief had come in time.

"Well, that's that," said Sandy. "But what gets me is how you knew one of those magnets was on the wrong way



and how you knew which one needed turning around."

"That's not so hard," said Red. "At least after you get the general idea of things. Any engine needs spark and gas and compression before it will run and while this outfit doesn't look much like the engines we are used to working on, still, it is built on the same general principles. I tried to play a trick on my pal here, but he's good natured and wouldn't get sore at a little shock. When he didn't bat an eyelash, however, I knew the magneto was dead. It's so easy to test for a spark that it is a good stunt in trouble shooting to do that first.

"Of course if the spark had been O. K. and we could have made it jump 3/16 in, it would then have been time to check the compression and prime the engine to see if it would run that way. Then when we found the magneto at fault and the springs had been taken off, it turned so easy that I came to the conclusion there was no magnetism there at all. That's an unlikely condition, however, for even if the magnets get weak it is nearly im-

possible for them to lose all magnetism unless they have been through a fire.

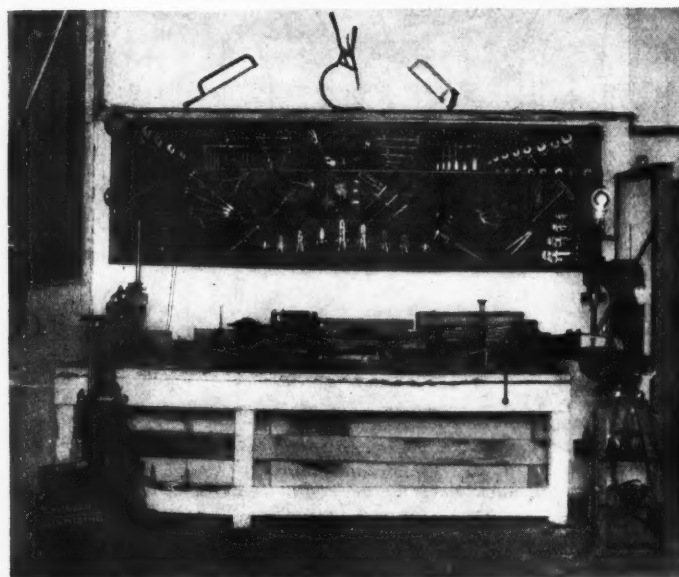
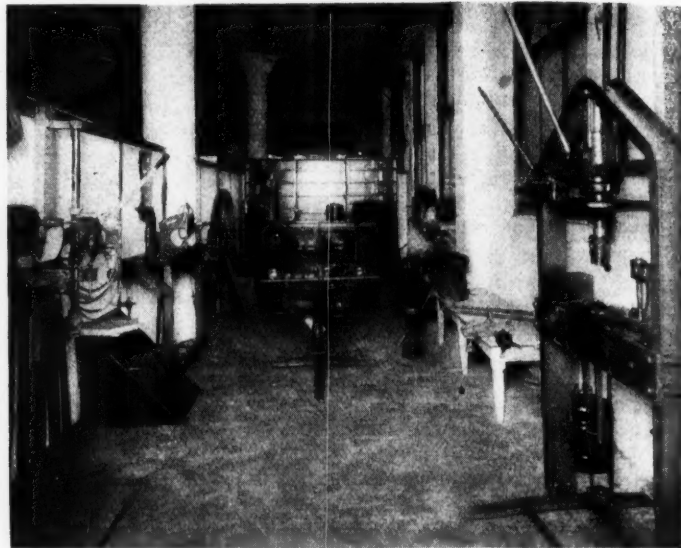
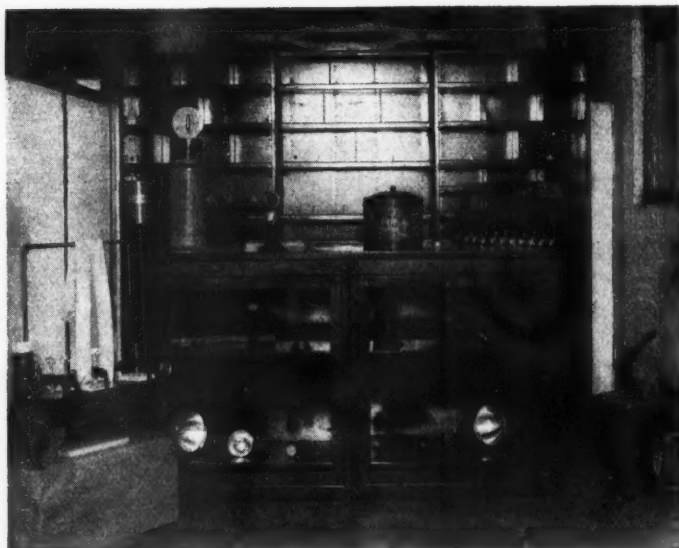
### Compass Does the Rest

"The compass did the rest for (Fig. 1) it showed that we had a north pole and a south pole on the same side of the magneto where we should have two north poles on one side and the two south poles on the other (Fig. 2). You asked how I knew which one to turn around. Fact is, there is only one kind of magneto on which it makes any difference and that isn't used much. This sketch I have here (Fig. 3) shows how the magnetism goes down one magnet and up through the other, with nothing to make it go through the armature where the winding is. For that reason the winding does not have any electrical voltage generated in it when the trip mechanism gives it a quick turn. That means no spark and an engine that falls down on the job.

"With the magnet turned around (Fig. 4) the magnetism in both magnets is going the same way, so the only path for

(Continued on next page)

## Model Shop Helps to Sell Automotive Equipment and Tools



*In the belief that good display of merchandise is essential to sales the Southern Hardware & Woodstock Co., New Orleans, La., has rigged up a model shop as shown in the accompanying illustrations. The company states that the cost of doing this was very nominal and it anticipates receiving good dividends for the amount of effort put forth. Only standard lines of merchandise are displayed in this model shop*

*At the end of the shop a few pieces of shelving and a steel counter have been placed to convey the idea of a small stock room. Accessories have been placed on top of the counter and also in the shop window. At the other end of the room is a bench and over it a rack displaying a great variety of tools and fitments for the shop and service station. Among the larger pieces of equipment is an arbor press, brake lining machine, cylinder rebor-ing outfit, vulcanizer, axle stand, air compressor, etc.*

## Clearing Up Mystery of Reversed Magnets

*(Continued from page 13)*

it is to go through the iron armature in order to complete its circuit. If I had reversed the other magnet instead we would have had all the magnetism going the other way, but it would still have forced its way through the armature which is all we care about.

### Time to Eat

"Suppose we eat," said Sandy, as Red finished his explanation. "Then after dinner you fellows will want to be on your way again, I suppose. And Sandy slipped Red a crisp something.

"A fiver," thought Red. "Fair enough for an hour's work." And without looking at the bill he stuffed it into his pocket. Half an hour later, when husky men had played havoc with the rations spread by the camp cook, the phone in the mess shack rang and Sandy answered. The conversation was brief.

"They got him—that fellow Simon. May not be able to pin last night's job on him, but federal agents picked him up on another count and the strike is off." That means you fellows aren't likely to have to make any more sudden stops, like you did this morning." And Sandy, with a sly wink at Red, let go this little dig at Valvy, who, unconscious of the comedy going on at his expense, was busy stuffing the last bit of pie crust between his already loaded jaws.

"That was a good feed and an interesting job," said Red, as he rose from the table. "Hope to see your gang again sometime. Just now we better be rolling along."

And a few minutes later Bill Fixit's men in their Speedway car were on their way toward Coal City and points west.

"That bill ought to help some added

to our roll," said Valvy and he pawed at the hole in the front cushion where their joint funds had been stowed. There was no roll there.

Red saw the expression on Valvy's face and stopped the car. The slit in the cushion was wider than it had been. There was no question about it, their money had been taken as they worked at the mine.

## New Vesta Chemical Charger

A new charger for use with radio B batteries is being put on the market by the Vesta Battery Corporation of Chicago. This charger uses a larger jar than the previous model and is complete with two sockets, one for the lamp and one for attachment plug, as well as connection for the B battery. The charger lists at \$3.75, dealers' prices being supplied upon request.



# All Forms of Rebating Condemned By Petroleum Association

**A**LL forms of rebating in the sale of gasoline and oils to dealers for re-sale were condemned and possibility of appeal to legislative action to destroy the practice was hinted at the spring industrial conference of the National Petroleum Marketers' Association at the Congress Hotel, Chicago, April 7, 8 and 9.

Methods of rebating which particularly riled the marketers include the giving away of pumps and other equipment to garages and other curb pump operators, secret return of money as a discount from the price of gasoline, and the paying of a dealer's rent as a salary for his selling a given concern's products.

This association, which has adopted the name of "the fighting branch of the independent oil industry," comprises a considerable portion of the independent oil jobbers throughout the United States. Some of its members sell both at retail and for re-sale, while others sell only to dealers.

## Urged to Buy Own Equipment

A resolution was adopted in which "old line companies and others" were mentioned as indulging in rebating at present.

W. O. Hudson of New Orleans, La., a director of the association, branded rebating as it exists in the oil business as "the worst form of business thievery in the United States." He declared it was morally wrong and should be punishable by law. At the same time numerous speakers among the membership admitted they were guilty of rebating. Some blamed Standard Oil and other large companies with starting the custom, while others thought the smaller companies were as much to blame.

Retail sellers of gasoline were urged to purchase their own equipment and to maintain independence of their sources of supply. Many reported that numerous garagemen were switching to such a policy on their own accord and were starting to merchandise oil products on a business basis of their own.

## Discuss Rural Prices

Motor car dealers and garage operators will be interested in learning of the sentiment expressed at the meeting against continuance of the practice of selling gasoline from tank wagon in rural districts below the price at service stations. President L. V. Nicholas declared the present policy of driving into the country and selling gasoline for two cents a gallon below retail prices in towns and cities to be contrary to good business economics and a reflection against the intelligence of all sellers of oil. It was predicted that rural selling prices in the near future probably would be brought to a level with urban prices. Thus, it

was explained, should benefit all sellers of gasoline at retail. In fact, some speakers declared oil marketers could make a better bid for favor from garages if they would reduce the garage price one cent a gallon—which they could afford to do if they would increase rural

Expressions of sentiment against the practice of sending tank wagons into rural districts to undersell gasoline retailers in cities and towns were heard at the conference of the National Petroleum Marketers' Association.

While the association took no action looking to elimination of this custom let it be hoped that opinion voiced at the Chicago meeting will ultimately assume the form of definite steps in this direction.

It is manifestly unfair and selfish for the large oil marketer to carry on competition of this character with a distributing outlet, such as the service station or garage, whose business it has sought and who is entitled to the same fair treatment from the large oil marketer as the retail grocer would have a right to expect from the wholesale house with which it does business.

No large merchandising industry can enjoy permanent prosperity unless it considers the prosperity of its legitimate retailing agencies. Elimination of tank wagon underselling and turning this rural business over to the legitimate retailer would, in fact, materially help in stabilizing the great process of gasoline distribution.

prices one cent. This would bring rural buyers to buy more frequently in town and all garages, service stations and other sellers in the towns and cities would do more business.

Early summer will see the starting of a campaign to advertise and merchandise a few national lines of gasoline and oils, sponsored and participated in by members of the association. These motor fuels and oils, which will be sold both to dealers and to the public, will be refined to common specifications and marketed throughout the United States under the same brand names.

The gasoline brand chosen will be known as the "hat series." Red Hat gasoline will be the featured gasoline. Others will be Green Hat, High Hat, Purple Hat, White Hat and Blue Hat. The advertising campaign includes pump- and station-globe insignia and space on billboards and in national popular magazines. It will be the first time the "independent" oil men have attempted to merchandise a common line of branded goods. An appropriation of \$125,000 has been underwritten to start the campaign.

Members of the association reported they were preparing to handle by far the largest gasoline and oil business in the history of the industry this summer.

A decline in the price of gasoline by tank wagon and at retail was foreshadowed in statements of association members. They advocated immediate reduction in tank-wagon and service-station prices of gasoline because of the fact that tank-car gasoline prices have dropped several cents a gallon from their high point of February, causing a wide margin between jobbers' buying and selling prices. This widening differential is not only unfair to buyers, but it invites too free competition and political interference in the oil business, it was said.

## This Dealer Uses 110,000-Mile Car for Demonstration

Leon T. Shettler, Rickenbacker distributor in southern California, does not believe in using a new car of the latest model for demonstrating to customers. "That proves nothing," says Mr. Shettler.

"Any new car looks good; fresh varnish may conceal a lot of flaws.

"Of course, a new motor is silent; and almost any kind of a car will show a creditable performance when it comes fresh from the factory.

"What the intelligent buyer—and especially the blase, cynical Old Timer—insists upon, is knowing what a car of that make will be like after 59,000 miles or so. How much does its maker know, and how much does he put into it, of that quality which makes for endurance and stability and longevity.

"So we have used, for the past three years, the same Rickenbacker to demonstrate to our most experienced customers, a car that has gone 110,599 miles. It is the best proof of quality—the best example of engineering we can trot out when a customer wants to be 'shown.'"

## IOWA GAS TAX PASSED

DES MOINES, Ia., April 11.—The two-cent gasoline tax measure has been passed by the Iowa legislature and will be effective upon publication. The legislation was known as the Bergman bill, exempting purchasers of gas who used the product for other than motor propulsion on a public highway—a farmer exemption clause. The income will be about \$4,500,000 annually and according to the bill will be divided equally among the primary, county and township road funds. It was this division that brought the hottest debate on the bill and the attempts to reach an agreement on this feature held up the measure throughout the session.

# They Go After the Tire Sales

Part of the fleet of tire service cars used by Enzensperger Brothers to give motorists prompt assistance.



## *This California Company Does Not Wait for Prospects to Hunt Up Its Stores. And It Has an Effective Way for Handling the Time Buying Proposition*

"INVITE us to your next blowout," is painted on the rear end of every one of the ten motor cars used by Enzensperger Brothers, who retail General tires, manufactured by the General Tire & Rubber Co., Akron, Ohio, in Kings and Tulare countries, California, with stores at Visalia, Hanford and Tulare.

This concern sells nothing but General tires and is unique both in manner of selling and of service. It maintains large retail stores at Visalia, Hanford and Tulare, at each of which a large stock of tires is carried and where each of which is a center from which the company's salesmen serve the adjacent territory.

These three towns occupy the vertices of what is practically an equilateral triangle, the legs of which measure approximately 25 miles, lying in the south central portion of the San Joaquin valley, the great central grain, dairy and fruit section of Central California. Visalia, at the northernmost apex and about 35 or 40 miles south of Fresno, has a population of about 6,000, while Hanford and Tulare are towns of about 6,000 and 4,000 population respectively. The total of the tire business done by this company at its three locations amounts to over \$150,000 a year.

### *Organized in 1919*

The company was organized Sept. 8, 1919. There are three brothers interested, Robert J., Joseph G., Jr., and Frank J. At the time the company was

formed it had the agency for two other lines of tires, the change to the General line not taking place until early in 1921.

The material equipment of the company for the conduct of its business consists of the three stores mentioned, one of which, that at Hanford, is a completely equipped tire service shop, where all manner of tire service and vulcanizing is done. This shop is entirely new, is 50x150 ft. in size, and was completed by the company and occupied by it just recently. It is the very latest word in a tire service shop and to it practically all of the more serious jobs of tire service go from the other stores owned by the company.

### *Three Brothers Interested*

In addition, the company maintains ten motor cars which are in constant use for sales and service. Seven of these are Ford cars, painted an olive green, with the company's sign painted on their sides and with the legend with which this story opens painted on their rear ends. Each of these cars carries a compressed air tank which leaves the store each trip with air compressed to 175 lbs., and which has the capacity to inflate four Ford tires to a normal pressure. Each car also carries a stock of tire casings and inner tubes of the most popular sizes from which sales are made by the driver-salesman.

While covering so large a territory as two California counties, an area approximately 66 by 126 miles, the company

confines itself strictly to retailing. It does this by employing seven retail tire salesmen, each of whom drives one of the seven green Ford cars and who calls upon farmers, ranchers and orchardists at their homes. So thoroughly do they cover the respective territories and so rapidly do they move that the green Enzensperger cars are a familiar sight on all roads in Kings and Tulare counties.

### *How Salesman Operates*

Each salesman has orders from the company to examine the tires on the cars owned by every man upon whom he calls and in case any immediate service, such as inflating a flat tire or putting on a temporary patch or anything of that kind, is found necessary to do it at once free of charge. At the same time he is instructed to suggest to the car owner a substitution of General tires for those he already has on his car. In other words, the salesman is authorized to offer to trade new tires for the old ones, valuing the old tire at the price of a the regular price for the new General casing.

In case a trade eventuates, the substitution is made immediately, while the traded-in tires are brought to the branch store from which the salesman operates. Here the old tire is examined. If it requires attention beyond the facilities that particular branch can render it is sent to the Hanford shop for repairing. Then it comes back to its original source and is put on sale as a used tire.

Frank J. Enzensperger, who manages the Visalia branch, says the company does an enormous business in used tires. He says the company finds a ready sale for all it can trade in and finds this to



be a most important part of its business. He admits that no particular profit is made on used tires, but he asserts that the company always realizes what the used tire cost in the trade, plus the cost of the labor and materials employed in putting it into salable condition. He maintains that the mere fact of always having on hand used tires at an attractive price calls much trade to their store and constitutes a good means of advertising. Furthermore, every used tire sold by the company represents a new General tire sold to somebody.

### Salesman's Daily Report

At the end of his day's run every salesman must report to his office the results of his day's work. He does this by making out a prospect card on every call he makes. This card gives the name and address of the prospect, the make of his car, the size, make and general condition of his tires and details what proposition the salesman made to the prospect. The cards are filed in a daily tickler box and each day the salesman in planning his route for the day takes the prospect cards for the day which happen to be on his route.

Another method the company uses for getting prospects is to inspect the cars which may be parked on the streets in the town wherein the company has its stores. At each of these stores a man is employed whose duty it is to inspect every car that is parked in his town. Whenever he finds the tires on a given car worn or needing attention he looks in the car for the registration certificate which always carries the name of the owner. Then he fills out a prospect card for the job which he turns in at the office. In case he fails to locate the registration certificate he takes the license number of the car and the company gets the owner's name from the county registration lists.

### Handling Credit Business

Necessarily there is much credit business in California. In case the customer asks for credit he must furnish the information necessary to fill up a "Credit Information" card. This card gives all the essential facts regarding the prospect as respects his claims for credit, provides for two business references and in addition, by listing his fraternal affiliations, affords means for tracing him in case he disappears. Such a card must be signed by the prospect himself.

In case a sale is made on a credit basis a regular sale contract is made out and signed. The contract gives the terms of the sale and vests title to the tires sold in Enzensperger Brothers until every condition is fulfilled.

The Enzenspergers say this form of contract has been tested frequently in the courts and in every case it has been sustained. Even where a car has been

repossessed by an automobile finance company its provisions have stood and Enzensperger Brothers have regained possession of their tires.

### Work Under Budget System

The company works under a budget system. Every item of overhead is provided for. In this connection it is interesting to know that the maintenance of the company's fleet of ten motor cars for the year 1924 was 1¼ per cent of the amount of its total sales. This did not include depreciation, however. The company charges off 25 per cent a year for depreciation of its cars, hence when a car is four years old it is considered

to have paid for itself and is liable thereafter only to the 1¼ per cent maintenance charge. This charge includes gas, oil, tires and all repair costs.

When the company first started it offered to give free tire service anywhere and at any time within its territory. This policy was maintained until about a year ago when the company began exacting a mileage charge of 10 cents a mile one way on all service calls.

Nevertheless, the Enzenspergers think the free service was a good thing during the early days of the company's history. They say it was mighty good advertising and put Enzensperger Brothers on the map as tire salesmen in this territory.

THIS AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_, 192\_\_\_\_

by and between ENZENSPERGER BROTHERS, hereinafter called the "Sellers," and \_\_\_\_\_ hereinafter called the "Purchaser," WITNESSETH:—

That said sellers hereby agree to sell to said purchaser, and said purchaser agrees to purchase from said sellers, the following described automobile tires and tubes, \_\_\_\_\_

under the following terms and conditions, and for the total purchase price of \_\_\_\_\_ Dollars, (\$ \_\_\_\_\_), which said sum is to be paid in the time and manner as follows: \_\_\_\_\_ Dollars, (\$ \_\_\_\_\_) upon the execution of this contract, leaving a balance of principal of \_\_\_\_\_ Dollars, (\$ \_\_\_\_\_), which balance the purchaser agrees to pay in installments in accordance with a schedule as follows:

\$ _____	on _____	192____	\$ _____	on _____	192____
\$ _____	on _____	192____	\$ _____	on _____	192____
\$ _____	on _____	192____	\$ _____	on _____	192____

Together with interest on all of said deferred payments, at the rate of Eight per cent (8%) per annum, payable monthly, and added to said installments as the same become due. Said purchaser hereby expressly agrees to pay said deferred payments and interest at the office of Enzensperger Brothers, Hanford, California. Said purchaser hereby acknowledges receipt from said sellers of said automobile tires and tubes, in good condition, and agrees not to sell, attempt to sell, or otherwise dispose of the same, nor permit the same to be removed from his possession, nor permit the same to become attached, nor create nor permit to be created any lien or encumbrance or adverse claim of any character against the same, for repairs or otherwise. Should said automobile tires and tubes suffer any loss, damage or injury from any cause whatever, such loss, damage or injury shall not relieve said purchaser from the obligation to purchase and pay for the same according to the terms of this agreement.

It is distinctly understood and agreed that title to said automobile tires and tubes shall remain and does remain in said sellers until all of the payments herein provided for are made, and all of the conditions and terms hereof fully complied with by said purchaser, whereupon said sellers shall make, execute and deliver to said purchaser a bill of sale of said automobile tires and tubes.

It is distinctly understood and agreed that should said purchaser fail to make any of the said payments to said sellers in the amount, manner and within the time herein provided for, or should purchaser fail to perform any of the terms or conditions hereof in the manner and within the time herein provided for, said sellers may declare the entire purchase price and interest due and payable without notice, and may take judgment against the purchaser for the entire balance of the contract with interest, court costs and attorney fees, or may take immediate possession of said automobile tires and tubes, and in the latter event all of the rights, titles and equities of said purchaser in and to said automobile tires and tubes shall immediately cease and determine and said sellers shall be released from all obligation to transfer or deliver said automobile tires and tubes to said purchaser, and all sums of money theretofore paid and then due and unpaid by said purchaser to said sellers hereunder shall remain the sole property of said sellers and shall be considered as compensation for the use of said automobile tires and tubes by said purchaser, and said purchaser shall forthwith pay said sellers all payments and interest then due and unpaid as part compensation for the use of said automobile tires and tubes, as aforesaid.

In the event the sellers shall employ an attorney for the enforcement of any of the covenants of this agreement, the purchaser agrees to pay an additional sum of Twenty-five Dollars as an attorney's fees. The purchaser further agrees to pay any and all expenses of any kind or nature incurred by sellers in the enforcement of this agreement, in the event that the purchaser fails to perform any of the terms on his part to be performed. Time is the essence of this agreement.

IN WITNESS WHEREOF, the parties hereto have set their hands to this \_\_\_\_\_ day of \_\_\_\_\_, 192\_\_\_\_, and year first above written, at Hanford, Kings County, California.

ENZENSPERGER BROTHERS  
VISALIA HANFORD TULARE  
PROSPECT CARD

Name \_\_\_\_\_  
Address \_\_\_\_\_  
Make of Car \_\_\_\_\_  
Size of Tires \_\_\_\_\_  
Make of Tires \_\_\_\_\_  
General condition of Tires \_\_\_\_\_  
Proposition offered \_\_\_\_\_  
Remarks \_\_\_\_\_

ENZENSPERGER BROTHERS  
TULARE HANFORD VISALIA  
CREDIT INFORMATION

Name in full \_\_\_\_\_ Age \_\_\_\_\_  
Address \_\_\_\_\_  
Occupation \_\_\_\_\_ How long have you resided at above? \_\_\_\_\_  
With whom do you bank? \_\_\_\_\_  
Give two business references: \_\_\_\_\_ Address \_\_\_\_\_  
Is your automobile free of encumbrance? \_\_\_\_\_ Address \_\_\_\_\_  
Balance owing \$ \_\_\_\_\_ With whom? \_\_\_\_\_  
Make of car \_\_\_\_\_ Model \_\_\_\_\_ Year \_\_\_\_\_  
Member of what fraternal orders? \_\_\_\_\_  
Do you receive a cream check? \_\_\_\_\_ What creamery? \_\_\_\_\_  
I hereby certify that my answers to above questions are true and correct.  
(City) \_\_\_\_\_  
Date \_\_\_\_\_

Above: Form of sales contract for credit sales of tires; below: Prospect card turned in daily by tire salesmen and credit information card for tire prospects who ask for credit

# Sell 88 Cars in 33 Days

## *Golden Rule and Firm's Good Name Given Prominent Place in Promo- tion of Successful Selling Drive*



*Members of the firm of Field & Lee*

**B**Y means of a concentrated advertising campaign, and a concentration of sales effort, the firm of Field & Lee, of Oakland, California, distributors of the Star car for Alameda county, sold and delivered 88 passenger cars to private owners, and 14 to members of its own organization, in the 33 days from Oct. 27 to Dec. 1, 1924. The reasons for the success of this sales effort are listed by the officials of Field & Lee, as follows:

1. An advertising campaign in which the name of Field & Lee was fixed in the mind of the public as synonymous with business integrity, fair dealing, exact representation of the commodity sold, and courtesy.

2. Concentration of sales effort with a highly trained force of salesmen devoting all their time to one thing.

The firm was not new to the automobile buying public of the San Francisco Bay region when it took over distribution of the Star on Oct. 27, last year. "But our name was known only as one of many dealers, merely as one along Automobile Row," said an official of the company. "We set out to make the name of the firm as well known as the name of the car we sell." Under the direction of C. L. Ellingsen, general manager, and William Moyle, sales manager of Field & Lee, the big campaign was started.

Two essentials were recognized as

being the first problems to attack. One was an extensive advertising campaign and the other was the organization of a sales force to cover the territory.

Complete charge of advertising was given to an advertising agency. Its aim was threefold—first, to sell Field & Lee to the public as a firm whose word was unquestionable in the matter of automobiles; second, to get the Star before the public as the best car of its price; and, third, to combine Field & Lee and the Star car as synonymous in the public mind.

### *Technical Descriptions*

A series of full page advertisements was prepared to appear in the daily papers of the territory. The first few of these were devoted almost entirely to acquainting the public with the news that Field & Lee had taken over the Star car and their reasons for doing so. The fact that their business was founded on the principle laid down by the Golden Rule was given a prominent place in the general idea of the advertising.

This was followed by advertisements telling more of the Star as a car—technical description. Then came a series appropriate to the season, before Thanksgiving and Christmas. More than 20 full page advertisements were run during the initial campaign.

The first month of advertising cost

Field & Lee \$4,000, an amount, however, which proved well spent.

Organization of the sales force was left to Mr. Ellingsen and Mr. Moyle. A staff of 14 men was picked.

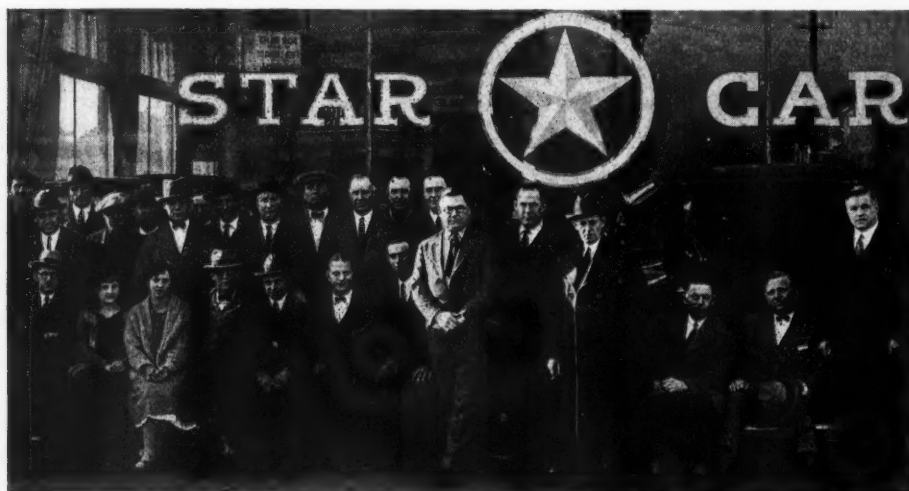
In the opinion of Mr. Moyle, concentration of sales work was a big factor in the record made. The salesmen were instructed as a group and worked out of one office. For two weeks before the active sales work began, daily meetings were held in which the entire campaign was outlined and the part every man was expected to do explained. Several trips to the factory at Oakland were made and each part of it was inspected, from the office to the shipping department.

After the mechanical end of the sales talk had been given to the men, a course in loyalty and determination was begun. The idea was drilled into them by Moyle and Ellingsen that they must be sold on the car they were selling.

### *The Big Push Is On*

Then the real sales work began. Every morning a "pep" meeting was held for an hour. Several public tests of the car were held by Field & Lee during the preliminary sales campaign for advertising purposes. These tests were made to show the ruggedness of the car and its adaptability to any and all conditions that might be met on the road. Several trips were made over the worst roads to be found in the country, through mud and sand, up mountainsides where no roads existed and over curbstones and up stairways. A tremendous amount of public interest was aroused by these stunts, conducted as they were, wherever a crowd was to be found.

Field & Lee made their record, according to Moyle, by demanding the attention of the motor buying public and securing it. The policy of the company has been, and will continue to be concentration. It is the firm belief of the heads of Field & Lee that a scattering of the sales force means a scattering of enthusiasm, and their intention is to hand their men work as a unit. At present the men in the branches meet each morning at the central office with the entire sales group for their "pep" meeting.



*Field & Lee sales organization*



# Flexibility and Economy of Operation Feature New Holley Vaporizer

UNUSUAL flexibility and economy of operation are the outstanding characteristics of the fuel vaporizer which has been developed by the Holley Carburetor Company. This device now is being shipped on Fordson tractors and is capable of handling the whole range of fuel oils from benzol and gasoline down through kerosene to the very heavy fuels such as the black oil commonly used in Borneo. During the development period preceding the formal announcement, runs under various actual field conditions have been made with the tank filled with waste crankcase lubricant. Even with this unusual fuel, little or no smoke showed at the exhaust and the engine had the flexibility of gasoline operation.

In operation, two outstanding features have been developed. First, the device works equally well on any of the range of fuels mentioned above. Second, fuel economy follows theoretical lines and is equally good for the heavier fuels. In view of the first consideration, the new vaporizer is not recognized as a purely kerosene instrument but as a more efficient vaporizer for the whole range of available fuels. This characteristic is responsible for the second feature. Theoretically, a gallon of kerosene should produce more power in an internal combustion engine than an equal amount of gasoline. Heretofore, engineers have been compelled to overlook this point when making the compromises in equipment for burning kerosene or other heavy fuels. However, the facilities for vaporizing the heavier particles of fuel in this instrument are sufficiently thorough to have eliminated this difficulty. Furthermore, the element of time-lag has been reduced to a minimum, so that with the improved economy, the demand for flexibility and ease of starting have been satisfied. In the minds of those who have experimented with heavier fuels, this will represent a real advance as heretofore one of the factors of fuel economy, full load capacity and flexibility had to be slighted to some extent to achieve a commercial compromise.

## Time Lag Is Slight

Exhaust heat is applied to a very rich mixture which is diluted with the incoming air stream at a throat or venturi situated just ahead of the throttle valve. The heating chamber is formed by two steel stampings of 1/32 in. thickness. Therefore, the time lag as referred to transmitting the heat of the exhaust to the rich portion of the mixture is very slight. In fact, but one float chamber full of gasoline is required to produce the necessary heat conditions when the engine is started cold. Like all devices of this kind, some tendency toward car-

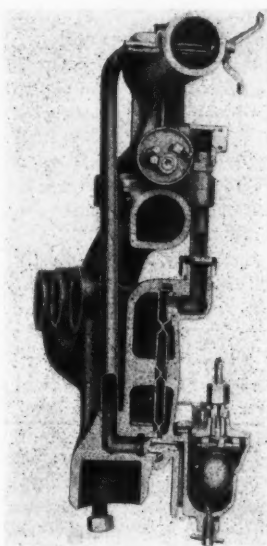


Fig. 2  
The steel tube carries air to the jet

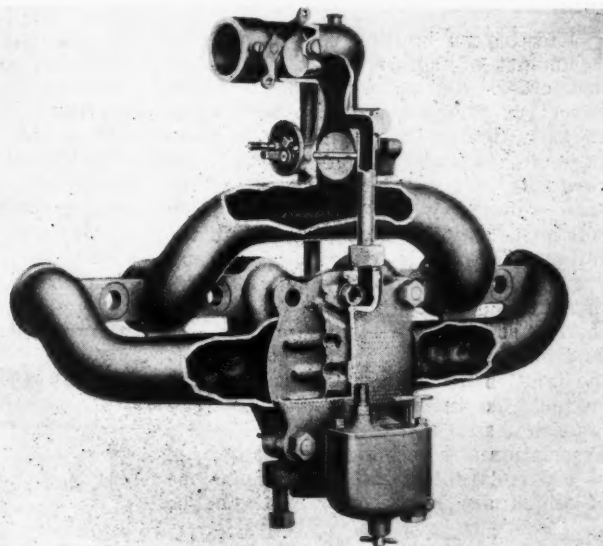


Fig. 1  
Side view of Holley Fuel Vaporizer

bon collection may exist in the heating chamber. In this case, this unit can be cleaned thoroughly after removing four cap screws and a coverplate without disturbing any other portion of the device.

## Mixture Passes Upward

As illustrated by Figs. 1 and 2, side view and cross section, respectively, a combined intake and exhaust manifold of cast iron is the foundation of the whole device. The intake portion of ram's horn design is located above the exhaust portion which has its outlet at the bottom of an enlarged middle section. The float chamber with inverted float valve is located near the bottom and is secured to the cover of the heating chamber. A brass plug which is screwed into the heating chamber cover also secures the outer steel jacket of the heating chamber and forms the fuel jet. In order to emulsify the rich mixture, a steel tube which connects with the primary intake introduces air at the jet. This connection is made to bring all the air in through the air washer, which is connected with the air intake by a short tube. As shown at the top of Fig. 2, the by-pass to the fuel jet is throttled by a valve formed at the end of the stem of the choke valve. In starting, this valve is nearly closed. Therefore, a restriction is placed on both the main and by-pass air streams with an added effect on the latter. This arrangement insures a rich though emulsified mixture for starting.

From the throat around the fuel jet, the mixture passes upward into the heating chamber which is formed by clamping two steel stampings together. On each of these stampings, ribs are formed

in a symmetrical manner. When the two stampings are pulled together by the cap screws at the cover, the opposing ribs as well as the edges are held together. Thus two small, tortuous passages through the heating chamber are formed as indicated by Fig. 1. As the inner steel plate is in direct contact with the hot exhaust gases, the temperature of the rich mixture is raised to a high point and vaporization ensues.

## Two-Compartment Tank Used

At the top of the heating chamber, the hot mixture passes out through a short tube into the throat above the throttle valve. Tests made with a glass tube at this point demonstrate that a dry gas is produced in the heating chamber. Here the mixture with the primary air is made. This air stream is regulated by an auxiliary valve in the intake passage. A brass forging which is used is made with a heavy bob below the horizontal bearing and, therefore, affects the vacuum in the balance of the instrument due to the work required to open this unbalanced valve. The usual butterfly valve is located just above the intersection of the vertical portion and the branches of the manifold and a priming cap is placed on top of the elbow at the upper end of the vertical section. A mounting flange for governor installation is located at the front end of the throttle stem, while the connection for hand control is shown at the rear.

As shown, the complete assembly fits all Fordson tractors. In conjunction with the vaporizer, a two-compartment tank is used. In the larger portion kerosene or other heavy fuel is carried with gasoline for starting in the smaller, which has a capacity of approximately

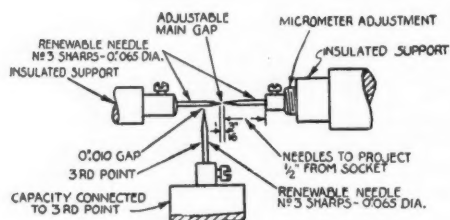
(Continued on page 33)



# The Gap That Makes a Difference

*Standard Method of Making Ignition Tests Is Recommended By the Automotive Electric Association*

IN testing an ignition coil there are a number of factors, some well known and others not so well known which affect the distance a spark will jump. In the cylinder the spark has to jump through gas under compression and accordingly will not jump as far for the same voltage. When testing an ignition coil on a complete ignition outfit in the service station it is not usually convenient to test under compression. Accordingly it is desirable to use a longer gap so that satisfactory results on this gap will insure satisfactory operation when the ignition device is being used on the engine. To insure some uniformity in ignition testing the Automotive Electric Association at a recent meeting approved of a standard test gap, the dimensions of which are here shown. It will be



*Standardized Spark Gap of the Automotive Electric Association*

seen that there is one spark point at the left and another at the right and the sparks are supposed to jump across the main adjustable gap. There is another needle point at right angles and below the other two used for the purpose of making the spark jump with greater uniformity. When the spark jumps in the engine after the engine is warmed up, the hot gases from the previous explosion are partially ionized and reduce the gap resistance. When the spark jumps at a test gap, however, this condition is not present, and the passing of the spark may slightly lag the voltage which produces it. As the voltage in some cases only exists for a brief fraction of a second it sometimes happens that no spark at all will jump. The use of the third electrode permits a small static spark to jump to this electrode and the ultra-violet rays from this spark ionize the main gap sufficiently to allow the main spark to jump the gap with greater uniformity than would otherwise be possible.

In using a test gap of this sort it is recommended that the coil be at room temperature, approximately 75 degrees F. at the start of the test. Readings are to be taken at various engine r. p. m. varying from 50 to 4,000 using 4, 6 and 8 volts, obtained by using 2, 3 and 4 cells of a well charged lead acid storage battery. Primary voltage is to be taken at coil terminals. The spark length is to

be the maximum distance the coil will discharge across the standard gap for 10 seconds without missing at the speed specified. Needles to be renewed for each coil tested.

The standard interrupter contact opening to be used. The high tension or insulated portion of the spark coil secondary should be negative. For 12 volt system use 8, 12 and 16 volts. From the standpoint of the electrical service sta-

tion, a gap of this sort would probably be used with a fixed distance of about 3/16 in. and if no missing would be encountered at any speeds, the ignition device would be considered satisfactory.

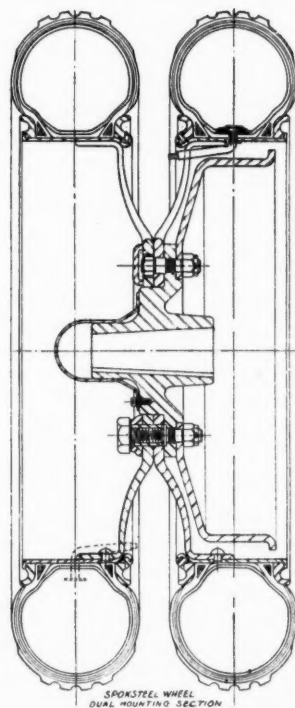
A miss can best be detected by the ear rather than with the eye, and a roll of paper like a blueprint mailing tube helps a great deal if one end is held near the ear while the other end is held near the spark gap.

## Motor Wheel Produces Spoksteel Wheel

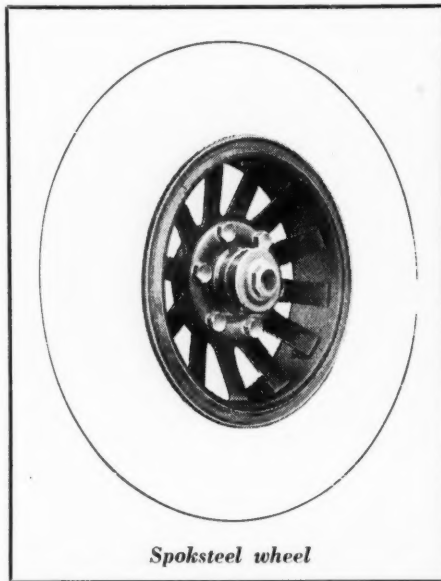
THE Spoksteel wheel now being produced by Motor Wheel Corp. for high speed passenger and commercial motor vehicles is a unique departure in wheel practice for this type of service. The finished wheel incorporates nearly the entire weight of raw material initially coming into the factory for that particular wheel.

The rolled taper spokes permit maximum thickness of the hub flange, the basis for a positive demountable wheel drive which will stay tight with the minimum of attention, it is claimed. The lock nuts in conjunction with the spring locking flange clamp against the hub flange in such a manner that there is no driving stress on the studs except possibly in emergencies and then the greater thickness of the hub flange provides the largest possible driving area for the studs. The spring of the locking flange tends to keep the nuts tight and in tension.

The rolled tapered oval section heat treated spokes have an extremely high elastic limit. An exceedingly large deflection without permanent set is there-



*Cross section of dual mounting of Spoksteel wheel*



*Spoksteel wheel*

fore possible, it is stated. Should a severe accident produce a permanent set in the wheel the necessary straightening can be readily done on an anvil without any special appliances, it being virtually impossible to fracture the tough spokes under any circumstances.

Spoksteel wheels are made in the convex form for dual mounting, and in the concave form for single mounting where dual duty is not required. This latter form permits economy in hub construction.

The company is at present manufacturing Spoksteel wheels to take any pneumatic tire in the 20-in. rim size, from 5-in. to 8-in. diameter, either dual or single.

# 25 Years Ago In the Automobile Industry As Recorded In MOTOR AGE

(From MOTOR AGE of April 19, 1900)

## The First American Motor Race

NEW YORK, April 15.—America's first automobile road race was in every particular successfully run over a 50-mile course on the famous Merrick Road on Long Island yesterday morning.

A. L. Riker, mounted on the 5-pass. electric racing wagon, which was especially built to carry him in the Bennett International Cup Race in France on June 14, won by a quarter of an hour in 2:03:30.

S. T. Davis, Jr.'s 4½-h.p. steam Locomobile, which made the fastest time to the turn at 25 miles, was second in 2:18:27.

Alexander Fischer, by masterly handling of his 5-h.p. gasoline runabout, built by the Automobile Co. of America, landed himself in third place in 2:30:01.

American road competition records were established by Riker and Davis at 50 and 25 miles respectively.

## Not to Be Absorbed

BOSTON, Mass., April 14.—Statements emanating from New York that the New England Electric Vehicle and Transportation Co. of this city will be absorbed

by the Electric Vehicle & Transit Co., which will operate a line of automobiles in Fifth avenue, New York, are said to be erroneous at the office of the New England company. The latter is said to be having a prosperous business:

## The Locoracer

WORCESTER, Mass., April 14.—The Locomobile Co. of America has completed, in its Westboro shop, a new pattern of steam carriage which has been named the "Locoracer." The carriage was designed by T. F. Ahern for speed work. It is similar in pattern to the regulation locomobile, but is lighter and has a three-quarter seat. Over rough roads this week the machine covered the distance from Westboro to Worcester city hall, fourteen miles, in 37 minutes.

## New Buffalo Company

BUFFALO, April 16.—The E. R. Thomas Motor Co., with a capital of \$150,000, is the name of a new concern that commenced the manufacture of motor tricycles and quadricycles this morning at Buffalo. The E. R. Thomas at the head of this concern is an old timer in the cycle industry. For five years he was

the managing director in Canada for H. A. Lozier & Co.'s business. He was also second vice-president and is still a director of the Canada Cycle & Motor Co.

## American De Dion Company

NEW YORK, April 13.—Kenneth A. Skinner, who controls the De Dion Bouton motors for this country, has been in this city several days promoting a company for the manufacture of the De Dion motors here for sale in the open market.

## Elgin Company Enlarges

The Elgin Automobile Co. have increased their capital stock from \$100,000 to \$500,000. This step is due to the demand for their vehicles. The new stock, it was learned from the management, has been subscribed by eastern capitalists. The offices will remain in Chicago and the factory at Elgin.

Orders have been pouring in so fast that the company is far behind in filling them. With the increased capital, however, the plant will be greatly enlarged and it is expected that a capacity of six vehicles per day will be reached in the near future.

## Converting Oldsmobile Coach Into Bed

ALTHOUGH entirely unintentional on the part of the body designers, it has developed that the Oldsmobile 5-passenger coach quickly and easily can be transformed into a Pullman-type sleeping compartment.

Changing the seating arrangements of the Oldsmobile coach into a bed is somewhat similar to the familiar procedure of making up the lower berth in a Pullman sleeper. The rear seat cushion is first removed. This discloses two wood screws that hold the back upholstery in place. Removing these screws, this back section can be raised off the retaining hooks and lifted out of place. The rear seat cushion then is replaced, with the front of the cushion placed to the rear to give the proper slope for a pillow. The back section then is placed between the front and rear seats, the front portion resting on the foot rail which has been raised to a perpendicular position.

## RUST-PROOFING GEARS BY UDYLLITE PROCESS

Automotive gears manufactured by the Warren Gear Products Co. of Warren, Pa., are now being made rustproof through the Udyllite process, which elec-

trically deposits cadmium on the metal surface. This deposit is less than .0001 of an inch in thickness, and it is claimed that it cannot in any way affect the size of the bearing lands, nor distort the tooth

profile. It gives a silvery appearance to the gears and it is claimed that it makes them absolutely proof against rust while in shipment or in stock on the dealers' shelves.



View showing conversion of Oldsmobile coach to a bed



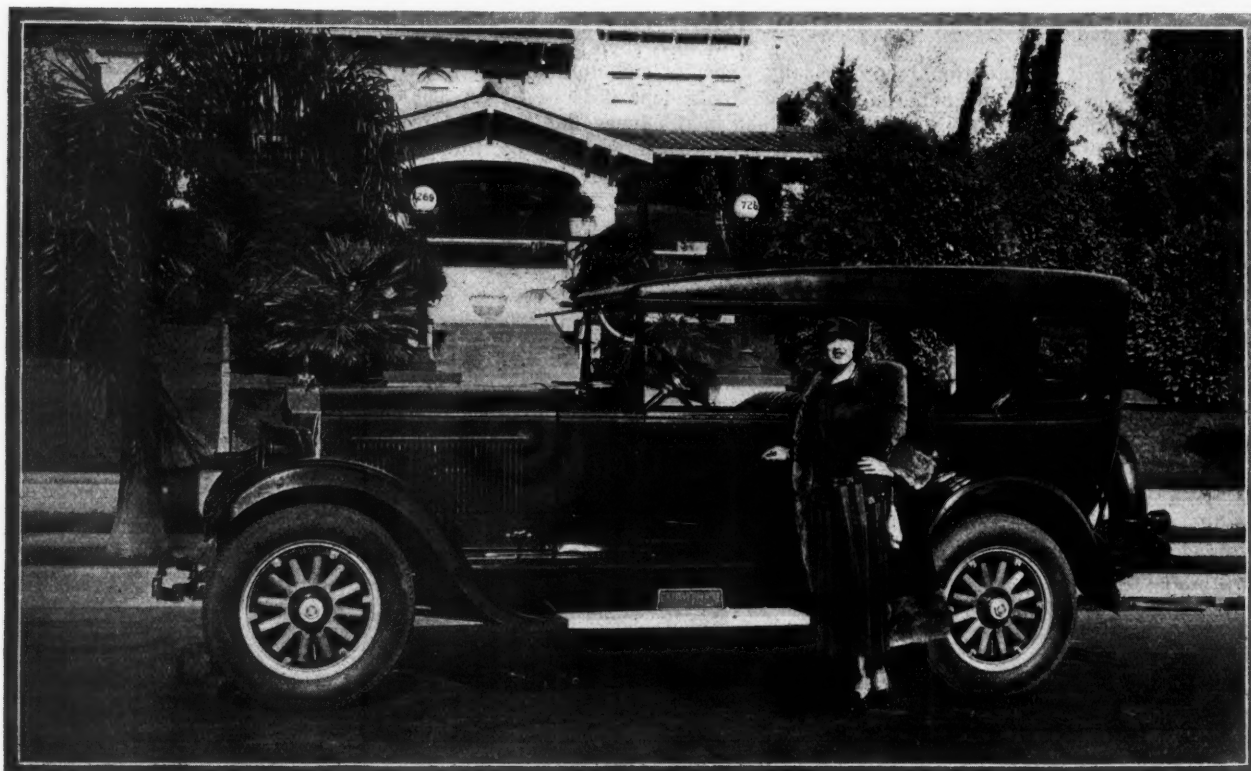
# MOTOR AGE'S PICTURE PAGES



**MAL VOYAGE.** Rod Burnham trying to ford Dirty Devil River, near Los Angeles, in a Super Six Hudson which he calls "Peggy." Rod and "Peggy" are scouting for new oil fields. A queer name for a river, and in this case, at least, there appears to be something in a name.



**JUST TRADED IN.** This one-cylinder Cadillac is still in running order and was used by the original owner since being bought new in 1905. It recently was traded in to the Parkway Motor Sales Co., Chicago, on the purchase of a new Essex.



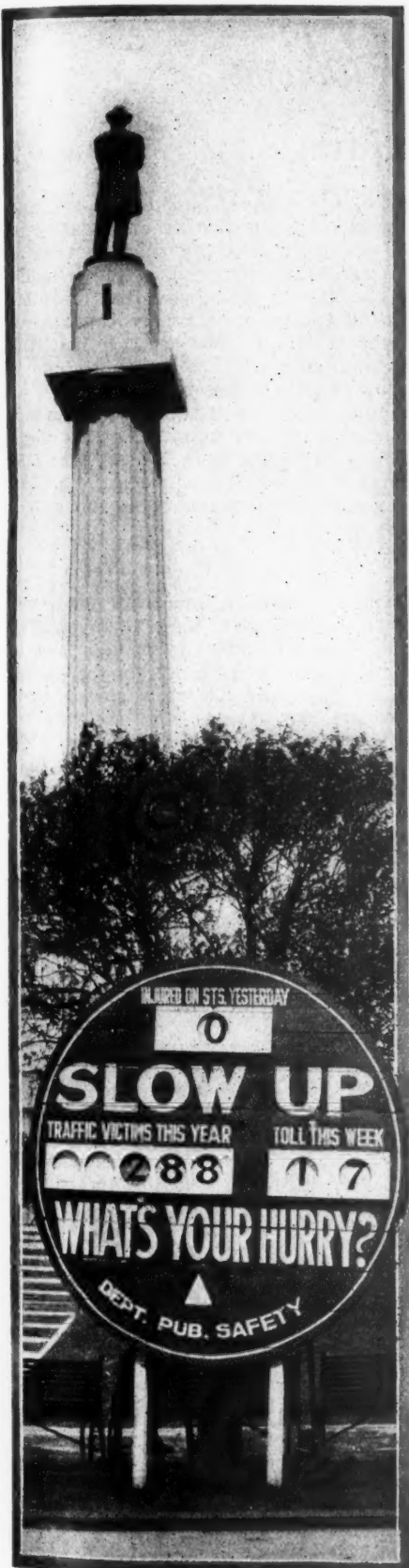
**SCREEN STAR READY TO TAKE THE WHEEL.** Mrs. Jack Dempsey, formerly Estelle Taylor, well-known moving picture actress, is shown here beside her new Studebaker Special Six Duplex-Phaeton in Hollywood.



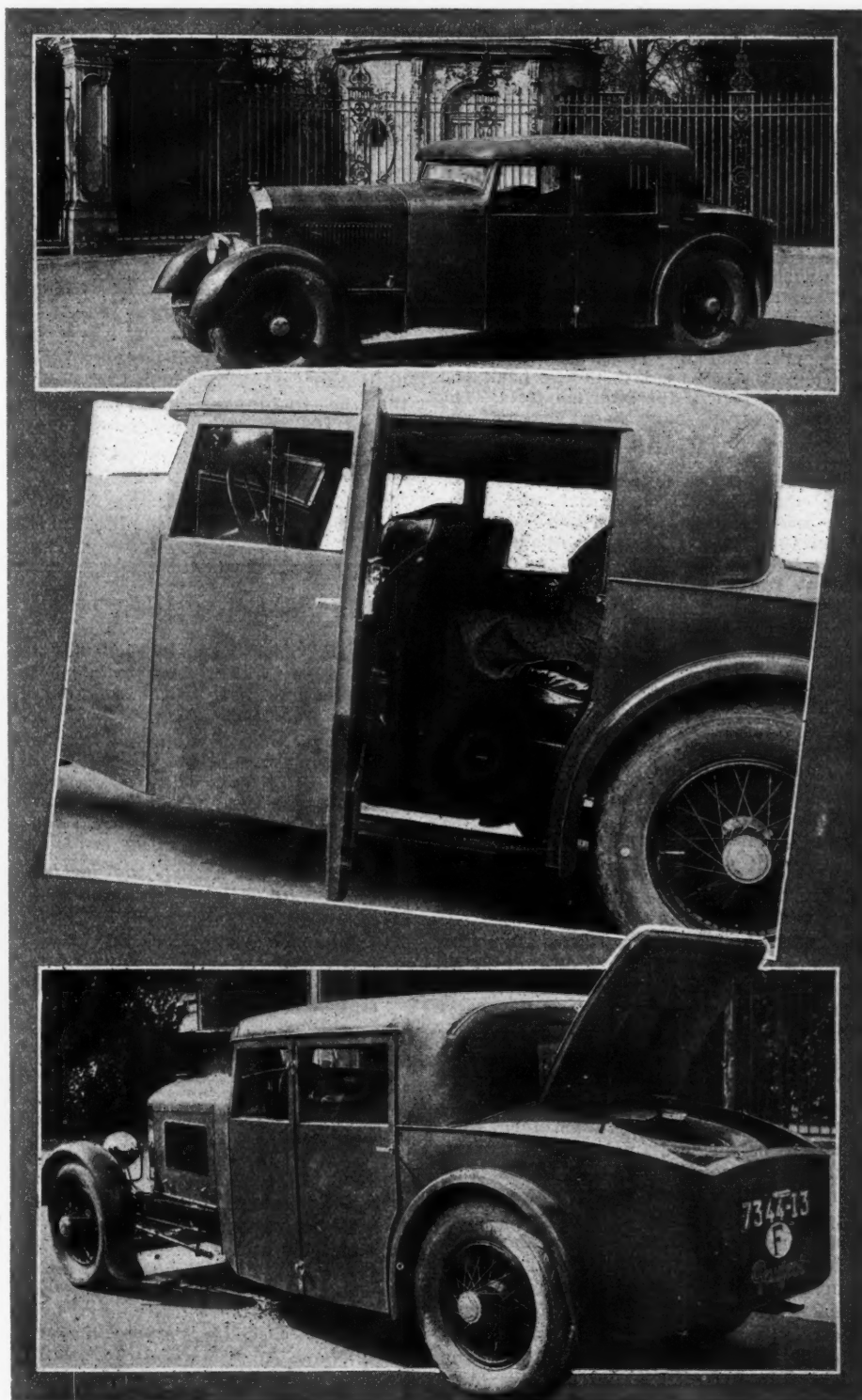
# OF AUTOMOTIVE INTEREST

**SOMETHING TO SATISFY THE OWNER WHO WANTS SOMETHING DIFFERENT.**

(Top) Peugeot sport sedan with Weyman body. The body is of leather construction with running boards inside body (center) and passengers' feet are below the level of the chassis frame. (Bottom) Tail open showing how spare wheels and gas tanks are carried.



**CARELESS MOTORISTS BEWARE!** Sign at the head of St. Charles avenue, New Orleans, in which the daily toll of traffic accidents is indicated. In the background is the statue of Robert E. Lee.



# The READERS' CLEARING HOUSE

## Questions & Answers on Dealers' Problems

### Vacuum Tank and Gas Line Testing

Q.—We have two Reo 6 cylinder buses that have run about 6000 miles since new. One of these gives excellent service, but the other has given us a lot of trouble when it is pushed the limit. After running at wide open throttle for two miles it runs out of gas, that is the carbureter runs dry and if left coasting with motor turning over at slightly open or closed throttle the vacuum tank will never pick it up, but if the engine is shut off or allowed to die the vacuum tank will pick up enough gas to start in 2 or 3 minutes and will run for another two miles at wide throttle or its equivalent, in mud or sand.

It works fine up to a half throttle in heavy pulling but if you crowd it over a half throttle it gives trouble and runs out of gas. All the lines have been blown out with 150 pounds of air pressure, a new carbureter tried and new vacuum tank, but with no results. The tank was taken off a car that was known to be o. k. and new parts put in the old tank and the vacuum line changed from the back end to the top side of the inlet manifold. The exhaust valves have been ground and checked and new rings installed and the bearings taken up.

All this failed to remedy the trouble. The carbureter has about a 1½ inch opening and a piece of sheet tin was cut and fitted to cut down the size to about 1 inch. This helped some but seems to cut the power considerably. These cars are on the same run and get the same care and service every day. The other one has never given any trouble but this one has always bothered.—Max Ramey, care Colorado Motor Way, 1530 California street, Denver, Colo.

#### Air Will Not Detect Partial Obstruction

If the carbureter bowl will fill when the engine has been shut off it indicates an obstruction between the bottom of the vacuum tank lower tank assembly and the carbureter float chamber inlet.

You state that all lines were cleaned out with 150 pounds of air pressure but air will not detect a partial obstruction in any pipe due to the fact that being compressible it will pass through a very small orifice, an orifice so small in fact that it would not allow fuel to pass in sufficient quantity to feed the engine. Our first suggestion is that you remove the line running from the bottom of the vacuum tank to the carbureter. Note the size or inside diameter of the copper tubing connecting the tank to the carbureter and then see whether the orifice at the bottom of the vacuum tank is of the same diameter. If not enlarge it. The next step is to find out whether or not the line connecting the bottom of the tank to the carbureter has an obstruction. The only correct method of doing this is to have the line off the car and then with a small funnel pour gasoline through it and note whether it comes out

at the opposite end in a full stream equivalent to the size of the stream at the pouring end. It may be possible that there is a small piece of solder or other foreign matter in the pipe that cannot be detected by the air pressure test. If the test just mentioned does not give a full stream of gasoline out of the lower end it indicates such an obstruction and the pipe should be heated to dislodge the obstruction or a new pipe made up.

We have assumed that the vacuum tank proper is drawing gasoline from the gasoline supply tank. To check on this portion of the system, however, it is advisable to remove the upper tank assembly, place a plug in the inlet manifold vacuum line, pour gasoline into the outer tank assembly and operate the car as a straight gravity system. If when this is done the car will stand 50 miles an hour until the fuel is exhausted it indicates that the trouble was due to the functioning of the tank and not due to an obstruction between the bottom of the tank and the carbureter.

In this case it will mean a careful examination of the line running from the

top of the vacuum tank to the gasoline supply tank and also an examination of the stand pipe in the gasoline tank if the car is so equipped. Another point to check is to make sure that the filler cap on the gasoline supply cap has an air vent in it. We assume that the vacuum tank on this particular car is mounted in the same relative position as on the other and if it is not we would suggest that it be mounted so that there will be at least a 10-inch head, that is a distance of 10 inches between the bottom of the vacuum tank and the top of the carbureter.

#### Will Impair Engine Power

The restricting of the carbureter throat by placing a piece of tin in it as you have done will not cure the trouble and is bound to impair the power of the engine as it sets up considerable friction as it prevents the engine from securing its full compression and full charge. We would recommend that you remove this tin and try the suggestions offered in the previous paragraph. We are considerably interested and would appreciate hearing from you as to the result of our recommendations. The test using the vacuum tank as a gravity tank will give you a definite indication regarding whether the trouble is or is not the vacuum tank or the pipe leading from the tank to the carbureter. The test on the line or pipe from the bottom of the vacuum tank to the carbureter will indicate whether or not the trouble is due to a restriction and between the two you should be able to locate the exact cause of the trouble.

Q.—The bus that gives this trouble also knocks the pins loose in the fibre timing gears and has been down twice on the front end for this trouble. These cars will do about 50 miles per hour on the level with governor. We have a 5A bus that has given the same trouble also on hills and in a hard pull and we can't find anything that will help outside of an air pressure pump on the supply tank. Can you help us out?

It is barely possible that the vacuum tank, if of the one quart size, does not have the capacity to take care of full throttle for long periods in which case we would recommend the installation of a larger size tank rather than install an air pressure system. Also make sure that you have at least 10-inch head between bottom of tank and top of carbureter. With regard to knocking the pins out of the gears, this would indicate an obstruction in the oil line running to the timing gear case and we would suggest that you very carefully check this point.

#### The Readers' Clearing House

**THIS department is conducted to assist dealers and maintenance station executives in the solution of their problems.**

**All questions are answered direct by letter, so the name and address should be given in full. This saves waiting for the answer to be published, which sometimes occurs several weeks late, depending upon the space available.**

**Readers' names will not be published with articles, if a request to this effect is received with the letter.**

**Inquiries not of general interest will be answered by personal letter only. Emergency questions will be replied to by letter or telegram.**

**Also state whether a permanent file of MOTOR AGE is kept, for many times inquiries of an identical nature have been made and these are answered by reference to previous issues.**

**Addresses of business firms will not be published in this department but will be supplied by letter.**

**Technical questions answered by B. M. Ikert, P. L. Dumas and A. H. Packer; Legal, by Wellington Gustin; Paint, by G. King Franklin; Architectural, by Tom Wilder; Tires, by a Practical Tire Man; General Business questions, by MOTOR AGE organization in conference.**



# Planning Your New Building

By TOM WILDER



## This Dealer Has a Real Idea

Q.—I have a vacant lot 50 by 144 feet in the center of a block with vacant on one side of it. I have a vague plan of a building for automobile repairing. I have operated a shop for 12 years. I do not like the conventional building of four walls, but I believe something can be worked out, more satisfactory as well as more profitable.

In the first place I think a gasoline pump on a drive-in plan would be a drawing card and if 50 feet would not allow a drive-in I might be able to lease some ground adjacent for that purpose.

I would like a waiting room with all conveniences for customers and a good show window, or place to display accessories, for my plan is to sell something to every person who drives in. I plan a court ample for light repairing and adjusting which could be used for such work for about seven months out of the year.

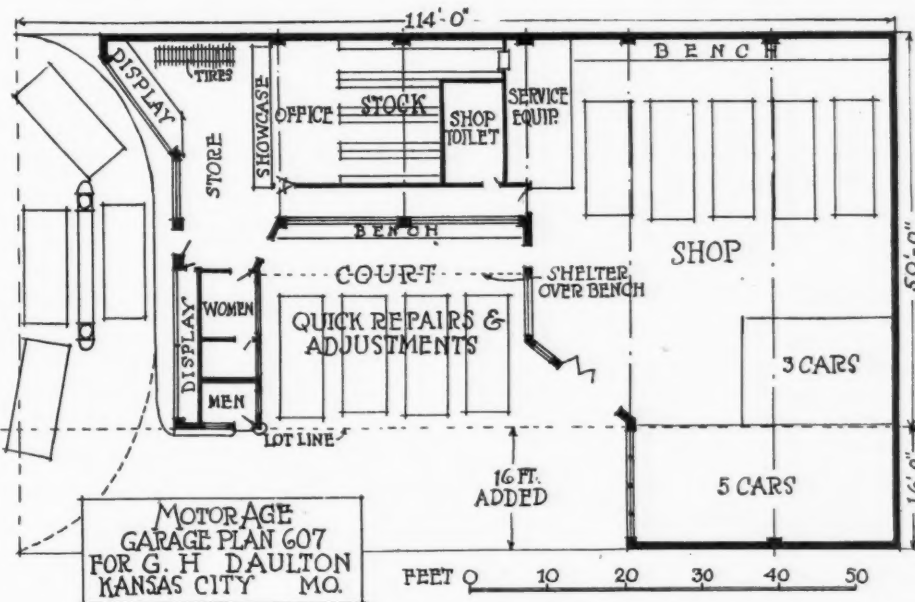
I find that customers, especially women, do not like to drive through a door and also to back out.

I want to specialize on brake lining or light work. I do not want any heavy machinery as we do not cater to heavy overhauling.—G. H. Daulton, 9 W. Thirty-first street, Kansas City, Mo.

We like the idea of your proposed layout very much and believe it will be a very good proposition. You have evidently studied human nature and the likes and dislikes of your customers and we believe that the open-court repair-shop idea will be a feature that might be encouraged to a greater extent among repairmen. Your 50-foot lot, however, is rather narrow to permit of a good filling station installation. If it were not for the filling station you could get away with it all right but for a drive-in station, large cars can barely make a fifty-foot turn and your station would constantly undergo congestion that would be the very thing that you want to avoid. Your women customers for whom you want to make things easy would get all tangled up and consequently we have made an addition of 16 feet which we think should be a minimum, as the width of your filling station, with the pumps placed as we have them. There would always be space at the end for cars to get in and out of your open court and also to and from your repair shop.

We have arranged for an ample store and display windows the full width of the front of the building. Also a large showcase and office with stockroom behind it with plenty of stockroom space for all the parts and accessories you need. In the open court we have suggested a roof or shelter over the back part to protect the bench and tools against bad weather. This roof should be supplied with glass, so that it would not be dark under it, and if desired the roof could cover the whole court.

If you do not care for the storage space in the shop the bench could be extended



The open court is designed especially to meet women's aversion to driving through doorways

across the rear end rather than at the side, giving room for about three more cars in repair, or if you wish you could have a bench along both sides, giving still more service space.

As laid out, the shop will be rather dark and will need some skylights along the stockroom side and also over the shop.

As to specializing in the lighter repair

jobs, we think you are wise for you cannot do all kinds of repairing and make as big a success of it as you can if you specialize. Many men prefer the heavy work but you have shown your preference for the lighter work and that should be the line to stick to. As near as we can foretell this layout should be just the kind of a place to make your idea work out very satisfactorily.

## Legal Questions Answered By WELLINGTON GUSTIN of the Chicago Bar

### RETAIN POSSESSION FOR FAVORABLE SETTLEMENT

Q.—About December 31, 1924, a party here took his automobile out and was returning home late at night and I think it was after midnight. He had 1924 plates on and the Motor Vehicle Commissioner gave strict orders that if anyone was caught with 1924 plates on after midnight they were to be arrested. This party wanted to get home before he could be seen and somehow the machine caught fire before he got home. About two weeks afterwards he called us up and said to get his battery out of the car and fix it up, which we did. A week after a garage man came after it but I would not give it to him until I got my pay for it, and he said that the car did not belong to this party as they had a mortgage on it and that they had to fight with him to get the car.

Would the garage people have a right to take the battery or would I have the right to hold same for our bill for repairs and recharging. I see by other articles on general repairs that most of them have a lien on same.—New Hampshire Reader.

As against the owner you would have

a right to hold the repaired battery for your just and reasonable charges for repairs, under a common law lien. It appears you do not have a lien created by statute and therefore can rely on the common law lien which depends upon possession to sustain it. Now as for the holder of a mortgage against the car, the rule is that if the mortgage is a valid one, i. e., properly executed and recorded as required by law, and was given before the repairman's lien was created, then the mortgage holder has superior rights to the repair lien.

If the mortgage covered the car and its parts (as the battery) the fact that the car owner ordered you to remove the battery did not divest this battery of the mortgage lien. However, by holding the battery you may be able to secure a more favorable settlement and collect at least a part of your charges—in fact, you should collect all, as the mortgage holder gets the benefit of your work and repairing if they recover the car.





# Clearing Up Electrical

EDITED BY A. H. PACKER

## Armature Circuits and Tests

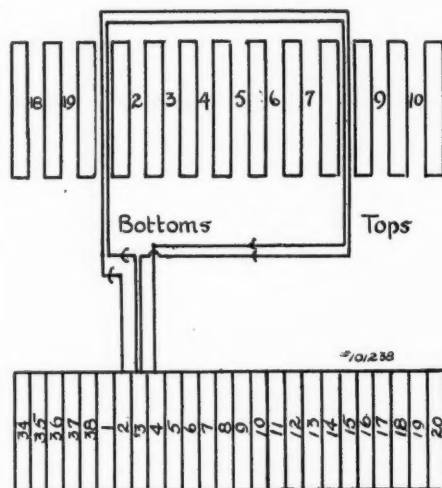
Q.—We would like to have armature winding diagrams for the following: Remy models 950-A and 951-A, Delco motor generator models 117 and 249, and also Auto-lite armature No. GP2161 used on 1923 Star. We would also like to have the name of some firm that carries supplies for rewinding, such as slot wedges, and clamps for holding armatures. We would also like to have some test that can be used in testing armatures for shorts and open circuits where a growler is not available.—A Reader.

We have a volume of blueprints giving various armature winding diagrams but in this volume we can at present locate only one of those you request, this being the model 117 Delco motor generator. We are showing two separate diagrams, one of which gives the generator circuits and the other the starter circuit. We will give you, however, by separate letter the name of a concern that can probably furnish this winding information that you require. They can also probably supply any equipment you may need.

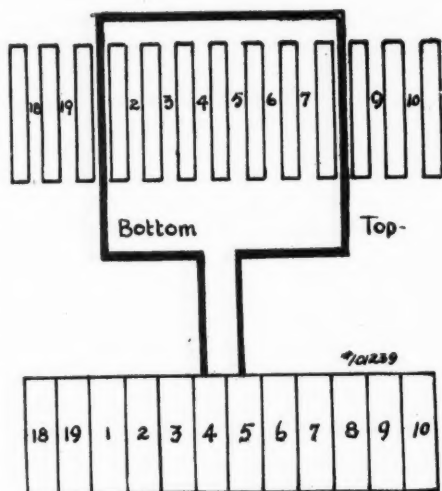
### Five Turns Per Coil

In connection with the generator circuit of the model 117 armature it should be noted that there are five turns per coil, the wire used being No. 16 D. C. C. (double cotton covered). The top leads are connected three and four to the right of slot No. 1 while the bottom leads are connected two and three to the right of slot No. 1. Referring to the starter circuit of the same armature, there is one coil per slot and one turn per coil, the wire size used being 9 No. 16 wires in parallel. Bare wire is used with sleeving on it. Top lead is connected five bars to the right of slot No. 1 while the bottom lead is connected four bars to the right of slot No. 1.

If you are going into the armature winding business it would pay you to have a growler and if you have no alternating current it would pay you to have a small generator for this purpose. There are a number of tests that can be used where no growler is available but they are not always accurate or conclusive. This is especially true in the case of starting motor armatures where the resistance of the circuit is very low. One test which can be used on generator armature where the trouble is quite pronounced is to use a dry cell and an ammeter and take tests on adjacent bars. This is a sort of short circuit test where if all the coils are the same the reading on the ammeter will always be the same. For example, if the average coil shows a reading of 10 amperes and at some place a reading of 15 or 20 amperes is



Generator armature circuits in Model 117 Delco M. G.



Starter armature circuits in Model 117 Delco M. G.

obtained it would indicate a short circuit. On the other hand, a low reading of one or two amperes would indicate an open circuit which forces the current to go through the other path in the armature which includes all the other coils in series. Another test requires the use of a millivoltmeter. To make this test a current is run through the armature by means of contacts placed at the brush positions. The millivoltmeter is then connected across adjacent bars in between these two brush positions. This instrument is then measuring the voltage drop through first one coil and then another. In this case a low reading indicates a short circuit and a high reading an open circuit. In addition to armature winding diagrams shown there is illustrated on the next page a method of testing an armature either with an ammeter or a milli-voltmeter.

## Installing Voltmeter On a Car

Q.—We wish to connect a voltmeter to car wiring to tell the condition of the battery at all times. Could you furnish us with a wiring diagram of connection? Would an ordinary voltmeter do the same as a battery gage?—Robert H. Ludington, Woodstock, Ontario, Canada.

One terminal of the voltmeter should be connected to the frame of the car or engine on practically any system where one terminal of the battery is grounded. There are a number of places in the wiring where the voltmeter terminal may be connected. If it is connected directly at the live or insulated battery terminal, it will read somewhat less than if it is connected at the live or battery terminal of the cutout. There will be no difference in these readings when the engine is not running but when the generator is charging the battery there will be some difference, due to the voltage loss in the wiring between generator and battery. If the connection is made at the ammeter the voltage reading will be about an average between the battery and generator voltage and we believe that this would be as satisfactory as any other connection you could make.

Any voltmeter which reads from four to nine volts should be satisfactory.

## A. B. V. D. Trouble Shooter Who Can Work It?

Q.—I have recently come into the possession of a B. V. D. electrical trouble finder, type B, No. 626, made by Bierhauer & Van Dunker, San Antonio, Texas. As this is a rather complicated instrument I know very little about its use. I have written to them but the letter was returned and I assume they are no longer in business. Can you give me directions for testing all kinds of automotive electrical equipment with this instrument?—A. B. Cook, Links Grove, W. Va.

## Probably Combination Voltmeter and Ammeter

It is possible that some of our subscribers are familiar with this device and can give us information which we can forward to you. We assume, however, that it is a combination voltmeter and ammeter and that it has been sold in conjunction with charts or books giving various methods of testing on the car. If you have some knowledge of electricity you can probably find out what the various terminals are for and if not you can possibly take it to some good electrical shop and have them figure out the terminal markings. With an instrument of this sort together with an understanding of the fundamental electrical principles which you should gain by a study of MOTOR AGE, you should be able to handle various electrical problems that come up. On any specific problem which you are unable to solve, we will gladly give special assistance.

# Trouble With Bill Fixit

EDITED BY A. H. PACKER



## What the Generator Does With a Reversed Battery

Q.—Can you always rely on a generator changing its polarity and charging a battery all right where the battery has been put in wrong.

No, this will depend on the action of the cutout switch. In practically all cases, however, the generator will build up and charge in the right direction if you first close the cutout switch by hand before starting up the engine. We only know of one very old generator, which was a Gray & Davis, with centrifugal regulator which would not operate properly and could not be readily reversed in this way. With practically all of the generators in use today, however, closing the cutout points will magnetize them in the right direction and when they start up they will charge the battery.

If the cutout points are not closed once by hand it is possible that they will burn and arc, vibrating rapidly but not staying in contact long enough to reverse the magnetism of the generator field. In other cases where the cutout armature moves more slowly the points may stay together long enough to let the generator field reverse.

### Remagnetizing Ford Magneto

Q.—Give method of remagnetizing Fordson magnets. My file of Motor AGE dates back 18 months and if given in that time please tell what number.—Anaheim Reader.

There is some difficulty in trying to remagnetize the magnets in a Fordson tractor due to difficulty in telling whether the flywheel is in the right position or not. One suggestion recently made to us is to use a 6-volt battery with one terminal connected at the magneto, all other wires being removed from the magneto post. The spark plugs are then removed and the engine turned by hand a little at a time while the other battery connection is flashed at the frame of the engine. When the magnets are in such a position that permanent north poles are opposite the electro-magnetic south poles there will be an attraction between the flywheel and the field coil poles.

In other positions the attraction will be less and in some position it will be a repulsion. The theory of this test is that you can hear the knock produced by the attraction which slides the crankshaft forward and that the stronger the knock the more likely it is that you have the flywheel in the right position. In making a test of this sort it might be desirable to push the crankshaft back in between tests. Aside from this difficulty the method outlined in the October 23rd, 1924, issue of Motor AGE for use on Ford cars could be applied equally well to the Fordson tractor.

## A BILL FIXIT MAGNETO STORY ON PAGE 12

*It's one thing to do a good job and another to collect. The Red Head and Valvy take a chance on a Scot's generosity. The next story will tell whether they were wise or whether mentioning the price beforehand would have been more satisfactory.*

## GOOD WORKMANSHIP NEEDED IN REBUILDING A HIGH SPEED MOTOR GENERATOR

Q.—We have a rebuilt Dodge Brothers motor generator, 1919 model, which charges all right at speeds between 15 and 20 miles per hour. Over 20 miles per hour it cuts out and when slowing down to 20 miles per hour it cuts in and charges 10 or 12 amperes. We have tried every remedy we can think of to overcome this trouble.—North Dakota Reader.

From your description this is a case of eccentric commutator. The high speed of the Dodge Brothers motor generator as compared to the engine necessitates having the commutator exactly concentric. If the armature at any time has been turned in a lathe and the centers at the end of the shaft have been used to turn the armature it probably accounts for this condition. The correct way to turn this is to have the commutator end of the armature held temporarily in the dead center and the opposite end of the shaft held in a chuck. A steady rest is then used with the three set screws brought down to bear on the outer edge of the bearing which is used at the commutator end.

When the set screws of the steady rest have been brought in contact with the outer bearing race the dead center is withdrawn so as to allow the commutator to rotate in its own bearing. This will make it possible to turn the commutator and have it exactly true when the job is finished. An eccentric commutator of course will operate at a low speed, but at high speed will throw the brushes off so that the machine will not generate. It is, of course, possible to have a floating short circuit or ground in the armature, which shows up at high speed, but this is not likely according to the symptoms as you have described them.

Other conditions which affect high speed operation are tightly fitting brushes, poor springs and poor undercutting on the commutator. The latter leaves thin mica sections which interfere with proper brush contact.

## Ignition Timing and Battery Testing

Q.—What is the correct timing for an Atwater Kent or Bosch ignition unit or for a magneto to be installed on a Ford car?

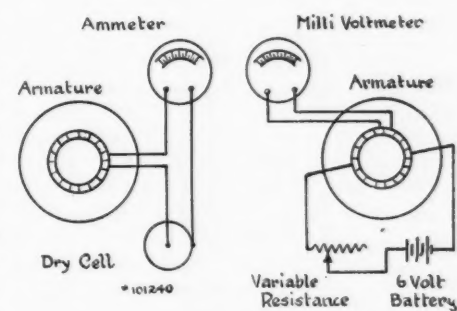
In any ignition device it is desirable to have the interrupter contacts just begin to separate with the spark advance lever in the retard position when the piston has come up to top center and has barely started down again. The opening of the interrupter contact produces a spark and to prevent the engine kicking back the spark should not occur until the piston has started on the down stroke.

Q.—How should the Ford coil unit vibrator points be set?

The thumb nut should be screwed down until the gap between the iron core and the vibrator is about 1/32 inch. The lower contact is mounted on a spring which is held on a U shaped support. This U shaped support may be bent more nearly closed to increase the spring tension and hence the current taken by the coil, or may be opened up somewhat to decrease the spring tension and reduce the current taken by the coil. The spark will be weaker as the current consumption decreases. A current draw of about .4 amperes is considered normal.

Q.—After the high rate discharge test, which is the next most accurate method of testing a battery?—J. Albon Bascle, Covington, La.

If the test is made in the car the starting motor may be used to put a load



The ammeter and millivolt method of testing armatures

on the battery. Then if a voltmeter is available it can be connected across one cell at a time to take the voltage, while the starting current is flowing. With a fully charged battery each cell will show about 2 volts. The voltage of a fully charged battery, however, will come up to 2.5 volts per cell or 7.5 volts for a six volt battery as soon as the generator begins to supply charging current.





# Motor Age's Flat Rate Forum

EDITED BY PAUL DUMAS

## Mr. Baender's Letter Is Discussed Further

1220 Boylston Ave.,  
Seattle, Washington.

To the Editor of MOTOR AGE:

I have for years been a reader of MOTOR AGE and have threatened at various times to enter into the discussion in your columns. Privilege me this once to say my little piece, stating my opinion on the Flat Rate. To begin with, will say that the flat rate is the thing when properly applied. For the past year I have had my eyes opened to the reckless and unethical way it has been handled. When shops with scarcely no equipment and a scarcity of such tools as they should have accept a job on at flat rate basis and promise it finished from one-half to three-fourths of the time in which it is to be done is undoing all the good that MOTOR AGE or any other advocate of flat rate charges can accomplish.

### Equipment Scarce

I have worked in various shops in this and other cities in the past yera in which all the equipment they possessed could be carried out of the place in less than an hour by any able bodied man. Items such as hub wrenches were so scarce that if one mechanic needed it the others could go without. No creepers at all and extension cords so short, invariably a workman had to work in the dark. Last but not least, these same shops expected and enforced their workmen to turn out their work under these conditions in such time as referred to above. The mechanical ability of these workmen could never be applied under such conditions, it was simply a case of getting through with the job and as long as it looked all right from outside appearances it got by. The conscientious workman never did get by and the owner got a poor job and the shop pocketed the money, and a smooth talking service manager usually convinced, for the time being, the owner that he got his money's worth.

I repeat that the flat rate basis of doing business is fine when carried out on a basis of honesty. I do, however,

condemn it when engineers estimate and set their rates under ideal factory conditions and permit their selling agents to use them under such shop conditions and poorly equipped shops, and then permit their work to be turned over to customers who paid for a good job. I am speaking now in defense of the workmen as much as the owner. They are both unjustly treated and it's fast driving independent repairmen into business for

anics that can do such work as is required at times to salvage a broken part. Some mechanics in the shop where I am employed are real good men when it comes to overhauling a car, but I've seen more time wasted at times trying to repair a broken part which is not in their line than what the part was worth.

In a service station where the men specialize in different things, such as motor work, transmission and rear ends,

ignition and carburetion and the shop is fully equipped to do repair work and employ real mechanics, what the engineer writes would go very nicely, for average auto mechanic is not much of a welder and unless a welder or machinist is employed things would not work so well.

### In Effect for Some Time

In our shop it has been in effect for some time, that is to customers. For the past year the mechanics have also had the work on Flat Rate and it has worked out better than ex-

pected. Of course, every week you see something happen which you know is not right, but what to do is the next question.

Last week a customer drove in to have his brakes adjusted and to repair headlights. The customer timed the mechanic who was working in the yard, and it took him just 25 minutes to do both jobs. The customer paid \$1.50, that being the rate for this job, and these things tend to make the customer feel that he is being soaked. Now in our shop work done by a mechanic must hold good for a period of 10 days. On an overhauling job recently the car came back with a complaint that it was using too much oil, also shooting oil. A new crankcase had been installed and on examining everything it was found that the main bearings were cast in case slightly lower than before causing the connecting rods to dip more than necessary, which accounted for excessive use of oil. This mechanic did not rebabbitt this case but had to make good on this job as it came back before 10 days.—John H. Brown, 310 Lake avenue, Worcester, Mass.

## MOTOR AGE'S FLAT RATE FORUM

No. 9

### LINCOLN FLAT RATES FOR MISCELLANEOUS OPERATIONS

Mfgr's. Official Designation	Labor Charge Operation
1 Clean carbon .....	\$ 8.50
2 Grind valves .....	18.00
3 Install new timing chain.....	8.50
4 Remove half link from chain.....	8.50
5 Complete oiling and greasing.....	8.00
6 General inspection and clean.....	15.00
7 Cleaning and repacking all wheel bearings.....	6.00
8 Reline foot brakes.....	9.00
9 Disassembling and reassembling for straightening front axle assembly .....	9.00
10 Change clutch plates.....	12.00
11 Change gear mount.....	15.00
12 Install new pistons and rings.....	12.00
13 Remove and reinstall leaky radiator for repairing.....	7.00
15 Install new upper hose on overflow pipe.....	1.00

Operations listed above apply to current models.

themselves as fast as their finances will permit. I mean those who have the ability and the pride to do a job right. I find the average owner is not a tightwad—he wants things done right and is willing to pay for it. It's a well known fact that owners as a rule suspicion most repair departments, both officials and repairmen. Let's have good tools and equipment, good workmen and give the owner a run for his money.—J. T. Graham.

Worcester, Mass.  
March 25, 1925.

To the Editor of MOTOR AGE:

Being an interested reader of MOTOR AGE, also the Flat Rate Forum, think I'll drop you a few lines as you request.

An Engineer's View of Flat Rate, which appeared in the March 19 issue is very good as far as it goes, it makes the customer know that you are trying to do something for him, but not all service stations have the proper equipment to carry on such work, nor have they mech-



# BOOSTING ACCESSORY SALES

## Narod Gearshift Extension Handles

Attachment is made by means of a clamp and they are made of Narod Sylvo-Aluminum. Type A is full length; type B, medium length; type C is furnished with a new steel clamping ring to hold it in place. List prices are 90 cents, \$1.25 and \$1.50.

Doran Engineering & Supply Co., 919 N. Hancock street, Philadelphia, are the

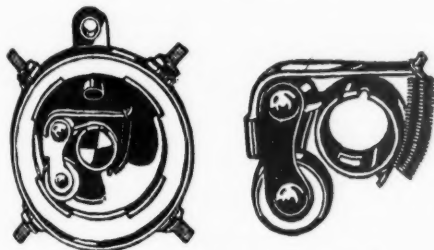


Narod gearshift extension handles

manufacturers. Display boards are furnished containing ten mounted handles, which are supplied straight, half-angle or full-angle bend. The list price of type A is \$9, type C, \$15. The company also furnishes free a display cabinet with assortments of 25 handles. List price for type A is \$22.50; for type C, \$37.50.

## Toledo Timer

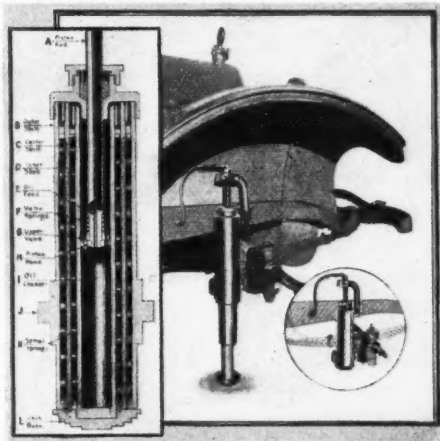
This product is made for use on Ford cars. The case is of steel and insulated with enamel to afford protection against rust and water, chips, loose wire ends, etc., when the timer is in service. The fibre ring is of a special bonehard quality; the segments which are set in the fibre raceway are made of steel. Hard fibre washers are used to insulate the contact screws from the case and the



View showing interior of Toledo timer and brush assembly

nuts are coppered. The throttle handle to which the spark lever is attached is a heavy screw machine part, riveted to the case. The oiler is the same as used by the Ford Motor Co. Also the roller and brush assembly (Ford No. 3165) is a duplicate of the Ford part. It is bronzed or coppered having a ground roller that is chill hardened to prevent wear. The spring is the new heavy type with a clip to prevent it from working loose.

The roller rotates on a bushing instead of on a pin or rivet. This is designed to eliminate chance of the rivet wearing and allowing the roller to come loose.



Paul combination shock absorber and automatic jack together with sectional view

Each timer is placed in a Royal Purple and Gold carton on which are printed instructions for installing and the manufacturer's guarantee. The timers are packed in corrugated cartons, 100 to the carton and weigh, ready for shipment, 60-lbs. The Toledo Timer Co., 3100 Monroe street, Toledo, Ohio, are the manufacturers.

## Paul Hydraulic Shock Absorber and Automatic Jack

This device is a combination shock absorber and jack. It consists primarily of three telescoping cylinders or shells—outer, center and inner—and a checking piston head. The outer shell is attached to the axle on the outer side of the spring, while the piston rod is fastened to the chassis frame.

As a shock absorber it works on the general principle of a compensating pump. With every compression of the springs, the piston gently settles in the oil chamber, cushioning the first shock, and when the springs react, it checks the violent recoil, and, it is claimed, permits their gradual return to normal without the "kick-back."

The oil chamber, which extends above and below the piston, is entirely filled with oil. When a shock forces the piston head down, the oil thus displaced escapes into the upper cylinder through small holes in valves, but when the piston rises (due to the spring rebound) a valve retards the passage of the oil and thus checks the return of the piston to its normal position. Because the oil cylinder is continually full of oil, there is no refilling or recharging and the absorber acts automatically. The maximum distance of piston travel is about 7 inches.

The jack is operated by a small pump connected with the engine and located beneath the floor. From this pump small copper tubes extend to the head of each piston rod. When used as a hydraulic jack oil is forced through these tubes down the piston rod, oil feed and into the

oil chamber, which in turn forces downward and outward the inner shells.

The maximum lift extension on front jack is 14 inches and on rear jack 19 in. The jack is operated from the instrument board by inserting a key and turning slightly which opens the oil valve leading to each jack.

The Paul Co., Duluth, Minn., are the manufacturers.

## Apco Timer No. 44

This timer is equipped with a round motor which bears evenly on all contacts. Behind each contact is a spring allowing the contact surfaces to adjust themselves to the wobble or uneven movement of the timer shaft. On the timer case is recorded the number of the cylinder to

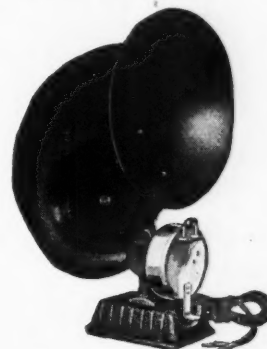


Apco timer

which contact must be made, also the color of the wire attached to each contact. The contact sleeves of the timer are so mounted that they rotate or creep while in action. The case is of genuine Bakelite. This timer is the product of the Apco Mfg. Co., 1200 Eddy street, Providence, R. I.

## BG Baby Grand Majestic Reproducer

Grigsby-Grunow-Hinds Co., 4540 Armistage avenue, Chicago, have placed on the market a Baby Grand size of their Majestic loud speaker, intended for use with



Majestic loud speaker

lower priced sets. It retails for \$9. It is provided with an adjustable volume control; the horn is made of Du Pont Pyralin. The speaker is furnished with a 5-ft. cord.

# GETTING MORE OUT of the SHOP

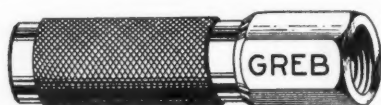
## Manley Service Runway

Several improvements have been incorporated in the new Manley service runway. It is made up in a combination of steel and wood, has 10 in. between the heavy angle iron guard rails and will accommodate cars fitted with the largest balloon tires. Wood floors are used because of the better traction and because it permits of easy application of cleats. The floors are made of selected 2 by 10 in. planks and the guide rails are flared out at the bottom sufficiently so the car can be guided into the approach with the assurance the rear wheels also will enter properly. Either a single or double incline can be had and since there are but two cross members, one at each end, the entire middle is clear of obstructions. There are no tie bars along the sides to interfere with grease trucks and the open spaces between the guard rails and floor allows dirt to be easily cleared away.

The price of the single incline runway is \$90; double, \$120; incline only, \$30; bed, less incline, \$60. The single incline runway has a bumper at the end. It is made by the Manley Mfg. Co., York, Pa.

## Greb "Shock Type" Wheel Pullers

This product is used as follows: Remove hub cap and axle nut and screw the shock puller on the end of the axle until it strikes the bottom of the puller hole. Strike a blow with a hammer and



Greb "Shock Type" wheel puller

the jar loosens the wheel so that it can be removed.

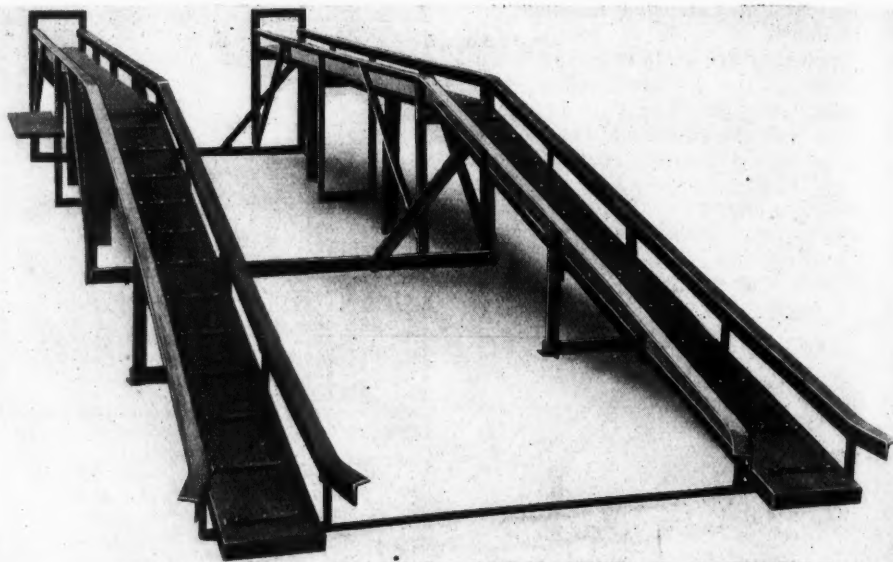
The puller is furnished in the following sizes:

No. 100— $\frac{5}{8}$  in., 18 thread..List price \$1.50  
No. 103— $\frac{7}{8}$  in., 14 thread..List price \$1.80  
No. 102— $\frac{3}{4}$  in., 16 thread..List price \$1.60  
No. 104—1 in., 14 thread..List price \$1.80

The Greb Four Pack containing "drive or shock type" wheel pullers of the foregoing sizes will fit 90 per cent of all cars, the manufacturer states. The price is \$6.60. The pullers are made by the Greb Co., 305 State street, Boston, Mass.

## Hutto Portable Drill Stand

The Hutto Portable Drill Stand, made by the Grinder Sales Co., 526 West Fort street, Detroit, can be used with any make of  $\frac{1}{2}$ ,  $\frac{5}{8}$  and  $\frac{3}{4}$ -in. electric drill and is 38 in. high. The handle works from either side, it being only necessary to disconnect the link, reverse handle and connect link again. The foot piece can be connected to a cylinder block with

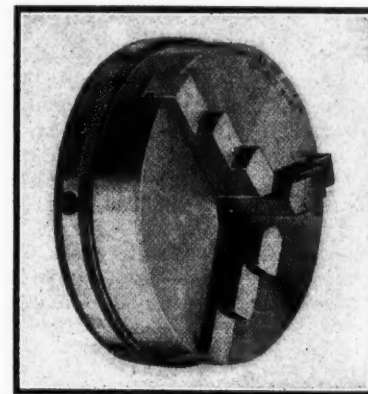


Manley service runway

one of the studs which holds down the head. This set-up is especially useful when using the stand in connection with the Hutto portable cylinder grinders. In this case it is necessary to use also the double universal drive shaft and fitting for the drill chuck. The stand weighs 27 lbs. and costs \$32.50. The price of the drive shaft and fitting is \$8.50.

## Dexter Lathe Chuck

The scroll in the Dexter chuck is operated by a lever or by hand, a lever being supplied with each chuck. This chuck is claimed to be very accurate and a necessity with the Dexter valve reseating machines. These chucks are designed for light power lathes and are fur-



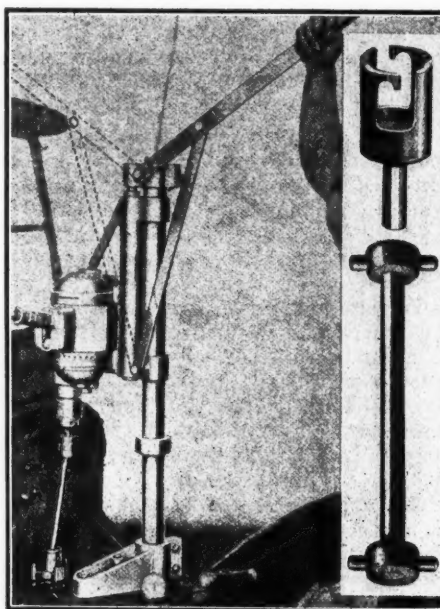
Dexter lathe chuck

chine Co., Orange, Mass., are as follows:

Diam.	Diam. of Hole	Price. One Set Jaws	Price Two Sets Jaws	Extra Set Jaws Ordered With-
				out Chuck
2	$\frac{1}{2}$	\$5.75	\$7.00	\$2.00
3	$\frac{5}{8}$	6.25	7.00	2.00
4	$\frac{3}{4}$	8.50	10.00	2.50
5	1	11.50	13.00	2.50
6	$1\frac{1}{4}$	14.00	16.00	3.00

## The Etiquette of Bumping

Suggestions on bumper equipment are offered motorists "in the interest of safety, for prevention of profanity, displays of temper and for the protection of property" in a booklet on Weed bumpers entitled "The Etiquette of Bumping," recently issued by the American Chain Company.



Hutto portable drill stand



# EDITORIAL

## The Dealer and the User

**W**HEN a noted scientist predicts startling discoveries they are reported in all publications and discussed in all scientific circles.

When Jones, the seer, indulges in predictions only the ignorant minority pay any attention.

The scientist is an authority in his line.

The dealer is the nearest authority to the user.

Reaching the trade through the trade press is reaching the user through his authority.

## Unsold Transportation

**T**HE Ford company has taken the most forward step in the organization's history with respect to its used-car problem. It can be seen at a glance that Ford is justified in expecting good results from its new policy for merchandising the commodity of unused transportation.

That a factory which produces transportation should take much more than a sympathetic interest in the sale of all transportation on its dealers' hands has always had a logical appeal, but the industry has been slow in coming into a full appreciation of this principle. Tendency in this direction has been developing and there are many who believe the day will come when recognition of the factory-dealer partnership will be so universal and pronounced that dealers will not be obliged to hold the used-car bag alone.

It is transportation that the industry has for sale and the used car on the dealer's hands represents "unsold transportation." The "new car" represents only a part of the industry's stock in trade.

## Shortage Talk

**H**ERE and there we hear predictions of a shortage of new passenger cars. To be sure such a situation is possible but there is hardly enough evidence before us at present to justify this expectation. A fuller swing of the buying season will be necessary in order to determine much in this respect one way or another. It is impossible to tell far in advance what the tone of automobile buying will be. We hope that it will exceed expectations and right now most of us, it seems, expect more a normal buying interest than exceptionally large consumption. It should require something more than normal demand to produce a general shortage.

At present some companies are behind on deliveries to dealers but the industry at large is ahead of immediate requirements to a considerable degree. The excess thus created, if held within sane limitations, should be well absorbed when consumption gathers greater force, the

greatest danger, as gleaned from experience in 1924, lying more in failure of the factories to call a halt at the proper time than in failure to meet the full demand of the market.

There is no occasion to be afraid of a shortage should such a condition materialize. It is far better to have to wait on the factories for deliveries than to have to help the factories move an excess of stocks for which there is no ready and natural market.

Obtaining a perfect balance between production and consumption is ideal but it is something that the industry never will realize. Either the market will be oversupplied or undersupplied and between the two conditions the latter is always more to be preferred. If there should be a shortage we can depend on it that there will be little reduction in prices and the cars that are sold will be sold at fair profit.

## Reorganization in Ohio

**I**T is proposed to bring about reorganization of Ohio dealers under a plan which while unique sounds practical and sensible. From the standpoint of the National Automobile Dealers' Association, seeking full co-operation of the trade in that state and wanting Ohio's organization to get off on the right foot, the method in contemplation should be productive of good results.

Instead of calling a meeting of such dealers as would be willing to attend and launching a state organization in the more conventional manner it was decided to form N. A. D. A. chapters in different cities, chairmen from these chapters to make up a state council.

The movement promises to result in the establishment not only of a strong state association but in many local units of the association, each of which will be founded upon sound principles as evolved by the national association during its long and comprehensive study of organization matters.

## Honest Values

**"H**ONEST used-car values and fair treatment of all buyers on the part of legitimate dealers is the policy that will most quickly rout the gyp." Such is the comment of a successful and highly respected tradesman who enjoys a profitable business through his used car department.

This merchant might have added that such a policy is not only the only right policy but an important key to the solution of slow-moving merchandise of any kind where the buyer is doubtful as to what he will get. Give him a good value and accord him fair treatment and when in the market again for a new car or a used car he will come back. The dealer who expects to be in business tomorrow must think of tomorrow.



# March Output Eighth Best on Record

## Total Production Reaches 362,000 Cars and Trucks

### Instances of Shortage Have Already Developed—April Figures to Be 50,000 Better

NEW YORK, April 15.—With a production record of 362,000 cars and trucks March was eighth in the list of the automobile industry for all time, and indications are that this excellent showing will be bettered by at least 50,000 vehicles during April. Virtual capacity has been reached at the factories, and best of all this productive activity is in response to genuine demand.

Instances of shortages have already developed, these being mainly closed cars. The factories are having the utmost difficulty in meeting the demand for all-season vehicles, and the body companies are of course benefiting greatly from this condition. If the two large producers of low-price automobiles are left out, the industry is running about 65 per cent to closed cars, an extraordinary gain since this time last year, when the percentage was below 50. The two companies excepted are turning out between 40 and 50 per cent closed models.

The great advantage to the industry of the pre-eminent place in public esteem of the closed car is that sales, and therefore production, are being spread out more evenly over the years. The time of the enormous increase in summer and rapid falling off as cold weather approaches is past, and this means economy in production and overhead costs.

Another favorable sign of the current period is that foreign trade is showing substantial gains. The companies that have made the greatest efforts to win foreign markets in the past all have expansion programs under way, and several newcomers are about to make their entry into the field. By all the signs and portents 1925 should be a record-breaking year in sales overseas.

## Dallas Three A 100-Mile Race Is Won by De Palma

DALLAS, Tex., April 11.—Ralph De Palma of Brooklyn won the 100-mile three A race at the Fair Park race track this afternoon, going the distance in 1:24:40 2-5. He drove a Miller special.

Of the ten contestants who started six finished. Phil Shafer, the "Texas Terror," was second, Earl Devore third, Wade Morton fourth, Jack Peddicord fifth, and Frank Elliot sixth.

De Palma made it almost a one-man race, taking the lead at the eleventh lap and holding it to the end, leaving his competitors far in the rear.

## Autos Showed Way During February

WASHINGTON, April 11.—The automobile industry lead all other industries during the month of February from a standpoint of increased production over January, according to the April monthly survey of current business by the Department of Commerce. The increase is in the output of automobiles and shows a gain of almost 20 per cent as compared with an average of 8 per cent in other industries for February over January.

The survey shows the production, based on an index number of 100 in January, 1919, was increased to 124 in December, 1924; 193 in January, 1924; 223 in February, 1924; 142 in January of this year and 170 during February.

Employment in the automobile industry, based on a monthly average index number of 100 during 1923, was 86 in January, 87 in February, compared with 96 in February, 1924.

## Ajax Specifications May Be Fully Disclosed Next Month

RACINE, Wis., April 13.—The cloak of mystery that has been enveloping the details and description of the Ajax car may be lifted before the middle of May. The specifications, models, and prices are being zealously guarded and a factory announcement is expected shortly. It is known that a model chassis has been completed and is under secret experimental observation. Every test of endurance and stability is being applied to the model to insure its perfection before it is released for production.

The plant is already beginning to take on more labor, preparing for full capacity production. Contracts have already been let for much of the raw material to be used and for all of the castings and cylinders, with the policy of buying at home in Racine being pursued.

### APPOINTED DISTRICT MANAGER

CHICAGO, April 13.—Another name has been added to the select list of silver jubilee automobile men associated with the Rollin organization. Carl J. Metzger, recently appointed Chicago district manager, is one of the real pioneers of the industry, having been identified with the distribution of high grade motor cars since 1897. Mr. Metzger was one of the organizers and early directors of the Chicago Motor Club, and was among the first members of the Chicago Automobile Club. He was among the founders of the early Chicago Rotary Club, of which he was a director.

## Billion Dollars to Be Spent This Year on U. S. Roads

### 24,200 Miles of Highway Scheduled for Construction by State Highway Department

WASHINGTON, April 11.—A total of 24,200 miles of highway or enough to circle the earth is scheduled for construction during 1925 by various State highway departments, according to information secured by the Bureau of Public Roads of the Department of Agriculture. The State departments plan to maintain a total of 217,794 miles.

Approximately \$405,000,000 will be available for construction and \$135,000,000 for maintenance this year. It is difficult to forecast the operations of the counties, but the indications are that they will spend approximately \$463,000,000 for construction and maintenance. The estimated total expenditure for the year is therefore \$1,003,000,000.

The State highway departments plan to construct 5,900 miles of asphalt, concrete and brick pavements, 11,600 miles of sand-clay, gravel and macadam roads and 6,700 miles of improved earth road.

Comparing the funds available for 1925 with those for preceding years it appears certain that the construction will go forward at about the same rate as in the preceding year. Since 1921 the total mileage of surfaced roads built each year has been between 30,000 and 40,000 miles.

## Paul G. Hoffman Is Elected to Head Studebaker Sales

NEW YORK, April 13.—Paul G. Hoffman of Los Angeles, head of the company bearing his name, has been elected vice-president in charge of sales by directors of the Studebaker corporation. He succeeds H. A. Biggs who has resigned.

Mr. Hoffman first entered the employ of the Studebaker corporation as a salesman in 1911 in Los Angeles. Four years later he was made sales manager of the Los Angeles retail branch and in 1917 was made branch manager.

Returning from the army, he purchased the retail business from the company and became a Studebaker dealer on his own account, starting with a capitalization of \$60,000. Today the company has assets of \$1,500,000.

### CANADA STARTS GAS INQUIRY

TORONTO, Ont., April 13.—Official inquiry into the rates charged for the sale of gasoline was announced by Premier Ferguson at a committee discussion of the bill to provide a three-cents-a-gallon tax on this commodity. The inquiry will cover the matter as to how to regulate the price, and will be for the purpose of letting the public know "what the truth is" the premier has stated.

## April Factory Shipments Outstrip Those of March

**Increases at This Time Indicate That  
Industry May Establish New High  
Production Record**

DETROIT, April 11.—Shipments from factories in the first week in April show consistent increases over shipments in March, increases that at this time indicate that the industry will come very close to setting a new high production record during the present month. March with its estimated total of 362,000 cars and trucks ranks eighth in the list of the industry's high months for all time. The gain in April over March is expected to reach at least 50,000.

The March production total was set in the face of a limited production total at the Ford plant. Orders from dealers received by the Ford company indicate that April sales will reach about 175,000, and with production equaling this total, will show a gain of 10 per cent. The largest gains as a class in March production were in the vehicles retailing at \$800 to \$1,500. This same group will probably show the largest April increase.

### Cease Sales Promotion

Demand for certain makes of cars has reached a point where these manufacturers have practically been compelled to cease all sales promotion work in the effort to get cars into the hands of dealers for waiting buyers. This activity it is expected will be held up until July as it is regarded certain there will be no falling off in the present demand until the closing days of the present quarter. Through sales promotional activity and dealer educational work it is hoped to keep car movement at a high point through the summer and fall months also.

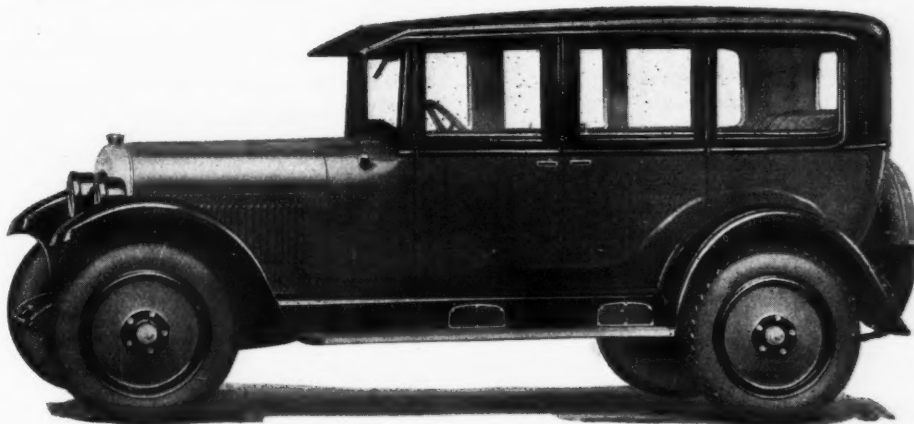
As an indication of the soundness of the present market and the likelihood of its continuance manufacturers point out that buying is general throughout the country, with the best records for the early months set up in the southern and Pacific coast states. As the year develops buying is becoming extensive in the middle west and northwest, probably the best March showings being made in these latter territories. In April and the next two months the industrial west and east is expected to vie with the agricultural districts.

### Present Market Sound

The soundness of the present market is the most pleasing feature to manufacturers. Practically all of the cars now being built are going direct to owners. Owing to the measures taken by the industry to safeguard dealers, there are few if any cars on hand, certainly not more than thirty days' retail requirements with the factories' consent.

If reasons were sought for the present excellent demand manufacturers could advance many. Foremost is the extreme

## Nash Announces New Four-Door Sedan



*The above car is the latest addition to the Nash line. It is built on the special six chassis with a low body, wide doors, and deep seats. The upholstery and trim are in dark blue mohair velvet. It will sell for \$1,545, f. o. b. factory*

value of the present-day automobile with appeal to every section of the country and to the export trade. Secondly, the country is in better condition at the present time than for the past twelve months, with the farm districts of the south and middle west and the northwest coming in for products that they have been compelled to delay buying for the past several years. Behind all this is a more enthusiastic and better trained dealer organization. Facing these conditions manufacturers are bending all their efforts to make cars that the market is demanding.

### NEW HOLLEY VAPORIZER

(Continued from page 19)

one gal. A three-way valve controls the outlets of both compartments. Just before finishing the day's work, this valve is shifted to the gasoline position and the engine is allowed to run long enough to fill the float chamber with this fuel. This amount is sufficient to set up the proper heat conditions for operation on heavy fuel, so the operator shifts the valve back to the heavy fuel as soon as the engine fires.

As explained previously, occasional cleaning may be required. To perform this operation, the nut shown at the bottom of the vertical tube in Fig. 1 is backed off and the four cap screws are taken out. The outer plate of the heating chamber comes off with the cover plate, leaving the inner plate exposed. Only this plate requires cleaning and this is done easily with a cloth. In connection with the stamped heating chamber, a lug is placed inside of the cover plate to hold the projections on the two members together firmly at all points. The entire unit is secured to the cylinder block by studs and nuts at four bars which join the intake and exhaust openings.

## Countrywide Increase Marks Sales of Peerless Models

CLEVELAND, April 11.—Sales of Peerless automobiles last month showed a decided increase in all sections of the country, according to figures just released by Charles A. Tucker, salesmanager of the Peerless Motor Car Co.

These figures showed that last month's sales, totaling 496 cars throughout the country, exceeded those of January and February of this year combined, and were 61 per cent greater than those of March, 1924. Last month's business was the best since July, 1923, with the exception of one month. Sales for the first three months of this year, aggregating 972 units, were 28 per cent higher than those of the first three months of 1924.

### ST. LOUIS HAS CAR SHORTAGE

ST. LOUIS, Mo., April 11.—A true harbinger of spring is here—a shortage of new automobiles. The condition which was so familiar in the industry each spring until last year has returned.

R. C. Frampton, president of the Hudson Frampton Motor Car Co., Hudson and Essex distributors here, says that spring has come suddenly and with it a mass of orders which has swamped automobile dealers.

## California Durant Motors to Take Over Star Company

OAKLAND, April 11.—At the annual meeting of the Durant Motor Co. of California it was voted to increase the capital stock of the company from \$3,000,000 to \$5,000,000 to take over the assets and contract of the Star Motor Co. of California. Norman DeVaux, vice-president and general manager, said that the company's next quarterly dividend would be declared as of May 1.

The company is now building at the rate of 116 cars a day minimum and the year's production for 1925 is expected to be about 30,000 cars, it was stated.



## A. E. A. Directors Favor Change in Anti-Trust Law

### Seek Agreements Economically Useful—November Show Committee Is Named

HOT SPRINGS, Ark., April 13.—A resolution favoring the changing of the anti-trust laws so as to permit agreements of co-operation among merchants which are economically useful was passed by the board of directors of the Automotive Equipment Association at its mid-convention meeting held here recently.

In the resolution the board expressed its belief that the Clayton Act and the Federal Trade Commission Act, passed in 1914, have failed to accomplish the purpose for which they were passed. Many automotive firms, the resolution said, are still laboring under the condition imposed upon them by the Sherman Anti-Trust Act and its misinterpretation by various judges.

Copies of the resolution were sent to President Coolidge, vice-president pro tempore of the senate, speaker of the house of representatives, attorney-general, secretary of commerce and to individual members of the Senate Committees on Judiciary and on Interstate and Foreign Commerce, to individual members of the House of Representatives' Committees on Judiciary and Foreign Affairs and to each member of the Senate and House.

Other resolutions were passed favoring the abolition of the Pullman surcharge and the extending of invitations to foreign buyers to attend the November show.

Arrangements for the November show were given a start with the naming of the show committee, consisting of F. B. Caswell, chairman, Champion Spark Plug Co., Toledo, T. N. Williams, Peasle-Gaulbert Co., Louisville, N. F. Ozburn, Ozburn-Abston Co., Memphis, W. G. Pancoast, Biflex Corp., Waukegan, and M. S. Gooderham, Toronto Auto Accessories Co., Toronto.

B. K. Sweeney of the B. K. Sweeney Electrical Co., Denver, was elected to the board of directors to fill the vacancy caused by the resignation of J. T. Jenkins of the General Asbestos and Rubber Co.

## Service Managers Committee Favor Flat Electrical Rates

CLEVELAND, April 11.—Flat rates for electrical service and co-operation with the smaller electrical shops was an important subject discussed at the recent meeting of the service managers' committee of the Automotive Electric Association.

There was no question as to the desirability of being able to give the customer definite information as to the cost of the labor, together with an estimate of the probable parts cost. There was some difference of opinion as to whether a

predetermined charge, named by the service salesman, or a flat rate for labor on each job of the same kind, would work out best in practice. Examples of the successful use of each system were given.

A progressive step in extending the availability of good electrical service was indicated by several managers present when they stated that special tools, abridged parts catalogues and instruction manuals were being supplied shops doing electrical work. This step is taken with the realization that many shops whether authorized or not will get and handle electrical work so that for the good of car owners and the industry it is desirable that all service work be done in accordance with factory standards.

### PAUL BASTIEN JOINS STUTZ

INDIANAPOLIS, April 11.—Fred E. Moskovics, president of the Stutz Motor Car Co. of America, has announced the appointment of Paul Bastien as associate engineer for the Stutz Motor Car Co. Mr. Bastien has spent 24 years in engineering work for motor-car factories, mostly abroad. For twelve years he was chief engineer of the Metallurgique and was later designing engineer for Berliet. He came to America three years ago and since then has been occupied in a consulting engineering capacity.

## Know the Demand

(Continued from Page 11)

the used-car department manager, "is that the purchaser of a used car is entitled to as much consideration as the buyer of a new car."

The company has determined that the used-car buyer must and shall receive 100 cents' worth of transportation for his dollar.

"Every attempt is made to remove any hint of the ordinary 'second-hand-car' market from this used-car sales place. The fixed price of every used car on the ground is maintained, marked on the car, and no deviation from that price is allowed. Salesmen are under strict orders to treat the prospective used-car buyer just as they would the new-car buyer. In other words, we attempt by words and actions to impress the buyer with the fact—and it is a fact—that he is purchasing, not a second-hand car, but a thoroughly reconditioned used car, good for a certain amount of transportation. No attempt has been made to confine the trade to low-priced cars. This is a used-car department store, and cars of every make offered are handled. We have no such thing as 'saturation' of the used-car market, and we take them all in, at exactly what they are worth as is, and sell them at what they are worth when they are thoroughly and competently reconditioned. This keeps used cars moving, makes customers for our new cars, and makes the firm consider its used-car department virtually as valuable as its new-car business."

## Westcott Motors Is Sold For \$81,000 By Receiver

### Company Will Be Permitted to Remain in Plant—Several Orders Yet to Be Filled

SPRINGFIELD, O., April 11.—A local syndicate composed of J. B. Cartmell, president of the First National Bank and head of the Buckeye Incubator Company, and Arthur B. Hill and George Cugley, also officers of the latter company, purchased the plant and fourteen acres of ground owned by the Westcott Motor Car Company for \$81,000 at a receiver's sale conducted by Receiver J. M. Rehe and his attorney, J. E. Bowman. The appraised value was \$135,000.

The sale was authorized by Judge Smith Hickenlooper of the United States District Court in the case of John R. Hurley of New York City against the Westcott Motor Car Company.

T. L. Beach, a local promoter, bid \$80,000 for the property and stopped when he was told that the court only authorized the sale of the plant building and acreage and not the machinery and other equipment. Mr. Beach said he desired to offer \$135,000 for it.

Those who purchased the plant are personal friends of President B. J. Westcott and will permit his company to remain in the plant, or at least a portion of it for an indefinite time. Possession is set for September 1. Several big orders are being filled now, Receiver Rehe says. An outside company, it is said, may purchase the franchise to manufacture the Westcott car.

## Canadian Casings Exports Show Increase in February

WASHINGTON, April 11.—Canadian exports of casings increased from 63,864 in January to 67,016 in February. Trade Commissioner Lynn W. Meekins at Ottawa has just advised the Automotive Division. The number of inner tubes exported increased from 70,800 to 80,318 while solid tires increased from 775 to 1,016.

Exports of Canadian castings to New Zealand numbered 23,286, the United Kingdom 7,087, British South Africa 6,532, Argentina 4,783, Australia 3,200, British India 3,324, the Dutch East Indies 2,770, the Straits Settlements 2,220, and Denmark, 2,094, Belgium, China, France and Sweden each took over 1,000 casings during the month. The largest shipments of inner tubes were to New Zealand 20,987, Argentina 10,905, British India 7,065, British South Africa 6,577 and the United Kingdom 5,459.

### PLAN FACTORY ADDITION

SIOUX CITY, April 11.—The Albertson Co., Sioux City, Ia., manufacturers of Sioux grinders and tools, will build a new addition to their factory, according to announcement recently made by the president, O. Albertson.

## Regular Quarterly Dividend Is Declared by Nash Motors

**Net Income for Three Months Ending February 28 Exceeds 1924 Period by \$1,480,817.31**

NEW YORK, April 13.—Directors of the Nash Motors Co., meeting in New York, declared the regular quarterly dividend of \$1.75 a share on Nash preferred stock payable May 1 to stockholders of record April 20, 1925.

Vice-President W. H. Alford reported that the net income for the three months ended Feb. 18, 1925, after deducting expenses of manufacturing, including depreciation, selling and administrative expenses and local, state and federal taxes, amounted to \$3,099,292.93. This compares with \$1,618,475.62 for the same period a year ago. The value of sales for the three months this year shows an increase of 43 per cent over last year.

Commenting on the business outlook, President Nash said that orders in hand for April are greatly in excess of the possible production and stocks of cars in the hands of our dealers throughout the country are 40 per cent less than a year ago, notwithstanding our increased production.

"An entire new line of machinery of the best and latest design for the production of the Ajax car is now in place in the Ajax plant at Racine. The date we shall begin the actual production of the Ajax car has not yet been fixed."

## L. H. Powell Re-elected Head of Minnesota Motor Trades

MINNEAPOLIS, April 11.—L. H. Powell of Marshall was re-elected president of the Minnesota Motor Trades Association at the fourth annual meeting, held here recently. Rud Stensvad of Redwood Falls was re-elected vice-president and W. J. Potts of Minneapolis treasurer.

In his address to the convention Mr. Powell said that the time was not far distant when a man would drive his automobile from his garage, hitch wings to it on a nearby flying field and fly to the desired point. On reaching his destination he will unhitch the wings, check them and drive to his place of business.

A. R. Kroh of the sales promotion department of the Chevrolet Motor Co. and A. R. Moggee, merchandising director of the A. E. A., were the principal speakers.

## BODY COMPANY TO DISBAND

RACINE, Wis., April 11.—The Racine Manufacturing Co., manufacturers of automobile bodies for the past 11 years, under the management of the McCord Manufacturing Co., of Detroit, will discontinue operations within two months and disband, it was announced today. The property of the company in Racine is valued at \$1,000,000 and it is expected that this will be sold. At one time the company operated with a payroll of 1,500 men.

## Walks on Highways are Advocated

HARTFORD, Conn., April 13.—Walks for pedestrians along future highways are advocated by Robbins B. Stoeckel, state motor vehicle commissioner, in his biennial report just filed here.

"The pedestrian," says Mr. Stoeckel, "is entitled to as much protection from the state as is the driver of an automobile."

## QUANTITY TRAILER PRODUCTION

SPRINGFIELD, Mass., April 11.—A program of quantity production in the trailer field has been announced by C. H. Martin, president of the Martin Fifth Wheel & Trailer Co. of Springfield. The schedule of the company calls for 10,000 semi-trailers this year, the unit to sell at \$380. It is stated that the company plans extensive campaigning to market its product and that it will put out a large force of salesmen and demonstrators. Mr. Martin says that a careful investigation of the potential trailer market revealed that there is a practically unlimited demand for trailers.

## Toronto Automotive Dealers Hold Merchandising Meeting

TORONTO, April 11.—Over 750 automotive dealers attended the merchandising meeting promoted by Boosters Club No. 12, with the co-operation of A. E. A. jobbers in Ontario, held at the Prince George hotel here recently. The meeting had the largest attendance of any dealer gathering recorded by the A. E. A. in 1925, either in Canada or the United States.

Arthur R. Mogge, merchandising director of the Automotive Equipment Association, spoke on "Profitable Maintenance" and showed the A. E. A. motion picture films. In his talk Mr. Mogge cited specific examples of how dealers had increased profits by using dependable replacement parts, modern shop equipment, and flat rates. He also stressed the importance of selling accessories and pointed out the value of dealers linking their sales efforts to manufacturers' advertising campaigns.

S. L. Squires, deputy minister of highways of the province of Ontario, made a forceful appeal for support of a three-cent gasoline tax in Ontario. Russell Kelley of the Hamilton Advertising Agency, Toronto, concluded the program. He told the dealers they could double their business if they would adopt and carry out the A. E. A. slogan, "Ask 'Em to Buy."

## PLANT TO BE ENLARGED

EAU CLAIRE, Wis., April 11.—To accommodate the constant increase in its business the Gillette Rubber Co., of Eau Claire, Wis., passenger car and truck tires, is erecting a one-story addition, 75x180 ft. The plant is operating at maximum capacity and recently added a night shift to bring production closer to demand.

## Assembly Plant Site Bought By Ford in Paris Outskirts

**Canadian Ford Co. to Take Over Sale of Cars in Australia—Change Will Be Made July 1**

DETROIT, April 11.—Foreign expansion of the Ford Motor Company is proceeding at an accelerated pace. A group of buildings, formerly a liquid air factory on the banks of the Seine five miles outside Paris, have been purchased and work on an assembly plant will be started at once. The factory will be in operation by August 1, at which time the Bordeaux plant will be discontinued. Ford's French production facilities will be greatly extended by the change.

It is also learned that the Ford Motor Co. of Canada will take over the sale and distribution of its products in Australia on July 1 through its subsidiary, the Ford Motor Co. of Australia. On that date the five assembly plants to be operated in Australia by this subsidiary organization will be ready for manufacturing, with the possible exception of the Perth plant. The other car assembly plants will be at Sydney, Adelaide, Brisbane and Geelong, near Melbourne.

## Will Form Two Companies

Two companies will be incorporated under the plans of the parent company. One, the Ford Motor Co. of Australia, Ltd., will be the car assembly and selling organization, the second will function solely as a body manufacturing organization, turning over its product to the car assembly company at the several points at which assembly plants are to be located.

The taking over of control of distribution and sale in Australia will be accomplished on July 1 without any disturbance of the present active market there, according to W. R. Campbell, vice president and general manager of the parent Canadian company. The mere fact that sales control comes under company direction at this time does not imply on outstanding increase in business, but economic considerations involved will result in the market being steadily widened to the greater advantage of the company and its dealer organization.

## A CORRECTION

In an article on page 39 in the April 2 issue of MOTOR AGE relating to the Chilton company's survey of the 1924 commercial car market a typographical error makes it appear that the estimate for new commercial cars (1924) is \$234,000,000.

This should have read \$284,000,000. The error, however, does not affect the total commercial car market estimate given in that table which was \$1,218,000,000.



## General Upward Revision of Tire Prices Expected Shortly

**Adjustments Already Made by Ajax and Lee—Advances May Be High as 15 Per Cent**

NEW YORK, April 13.—A general upward revision of tire prices will take place within the next two weeks, according to present indications. Several of the smaller producers, including Ajax and Lee, have made "adjustments" which really amount to a 3 to 5 per cent advance, but when the larger interests announce their schedules it is expected that the increases will be revealed as much greater.

### Contracts Protected

Manufacturers have felt for some time that higher prices were justified. Crude rubber is now selling at over 40 cents a pound, whereas last summer it was 17 cents, and meanwhile there has been practically no change in tire prices.

Schedules have been kept at the present level because two or three of the large companies have contracts with car manufacturers which they desired to protect. Now, however, it is understood that they have found a way out of this difficulty and are expected to be the first to announce advances that will probably be as high as 15 per cent. Other companies, it is thought, will quickly fall into line.

### Sales Are Better

The factories at Akron are working at top speed, and both production and sales are running well ahead of the levels at this time last year. W. O. Rutherford, president of the Rubber Association of America and vice-president of the B. F. Goodrich Co., who has just returned from a tour of the country, says that the outlook is for an exceptionally good year, though not a real boom year, for the industry as a whole. Jobbers and retailers, he declares, have in most instances avoided the danger of carrying excessive stocks in anticipation of spring business.

## DeLuxe Coach Model Added by Oldsmobile to Its Line

LANSING, Mich., April 11.—A coach deluxe has just been announced by Olds Motor Works of this city, manufacturers of the Oldsmobile six. It is being produced to fill a demand for a fully equipped car of this popular model.

"The demand we have had for a deluxe coach indicates that the full popularity of the 'coach' type of car is not price alone," said Guy H. Peasley, general salesmanager of the Olds Motor Works. "Reports from the field show that a considerable number of purchasers prefer the coach style, regardless of any price differential, as they claim it combines the intimate snugness of the four-passenger coupe with the roomy comfort of the sedan.

"The Oldsmobile de luxe coach is equipped at the factory with front bump-

ers, rear fender guards, trunk and trunk rails, motometer, rear-view mirror, automatic windshield cleaner and step plates, in addition to the regular equipment included in all the Oldsmobile body types. The list price is \$1,150, f. o. b. Lansing.

## Illinois Concerns Dominate Output of Farm Implements

SPRINGFIELD, Ill., April 11.—Illinois plants control practically half the business in the farm implement manufacturing field, according to a final report of the bureau of census on operations for 1923. Figures made public indicate that this state produced agricultural implements valued at \$70,000,000 in comparison with the national total output of \$150,000; its wage payments were \$19,300,000 of the total \$40,510,000 and its workers numbered 14,000 of 30,000 engaged in the industry throughout the United States.

The 1923 production was far in excess of that of 1922 but mergers and consolidations continued to be marked, completing a cycle of changes in the field since 1914. April is the peak production month, the survey indicates, with October the lowest, although the spread of employment in these periods showed a difference of only 3,000 employees.

### HUPP SIGNS NEW DEALERS

DETROIT, April 13.—The following dealers have been signed by Hupp Motor Corporation:

Hicks-Brown Motor Co., Wewoka, Okla.; Greenville Motor Co., Greenville, Ill.; Cadden, Bell & McDaniel, Coon Rapids, Ia.; Lou Parry, Rawlins, Wyo.; Jones Overland Co., Gainesville, Ga.; Thomas-Goodman Motor Co., St. Augustine, Fla.; Bowman Nash Co., Pendleton, Ore.; W. V. Grider, Condon, Ore.; Carter A. Lehman, Kenmore, O.; H. G. Blake, Texhoma, Okla.; Frank J. Karpinski & Sons, Mt. Carmel, Pa.; Riggsbee Auto Co., Marion, Ind.; Peterson Bros. Garage, Redfield, S. D.; Delaware Auto Sales Co., Wilmington, Del.; Columbia Sales Co., Lake City, Fla.; Natam Motor Co., Enfield, N. C.; Crowe Motor Service Co., Blackstone, Va.; Sanford Automobile, Inc., Sanford, Fla.; A. T. Hoyman, Turtle Lake, Wis.; Brandenburg & Elliott, Irvine, Ky.; Robinson Auto Co., Scottville, Mich.; Jos. Gennaro, River Rouge, Mich.; C. D. Shafer, Lake Orion, Mich.; Plainfield City Garage, Inc., Plainfield, N. J.; Wilbur Santee, Dixon, Ill.; Elkwood Garage, New Cumberland, Pa.; Bish & Forrester Garage, Butler, Penn.; Jorgenson Motors, Chehalis, Wash.; National Garage, Crawfordsville, Ind.; Merton Flood, East Hampton, Conn.; Leo C. Fischer, Waconia, Minn.; F. W. Eaton, Sterling, Colo.; Chris. J. O'Leary, Norwood, Mass.; R. R. Webster, Weeksbury, Ky.; Automobile Exchange, Helena, Ark.; Davis-Bedwell Co., Bristol, Tenn.; Churdan Mercantile Co., Churdan, Ia.; J. Pospisil, Klamath Falls, Ore.; Charles Town Garage, Charles Town, W. Va.; Maier Bros. & Fuehrer, Zeeland, N. D.; R. M. Gilbert, Warren, Minn.

### RICE FINDS CONFIDENCE

DETROIT, April 11.—H. H. Rice, president of Cadillac Motor Car Co., has just completed two business trips, in one of which he visited the Pacific coast and southwest territory, and on the other the New England and industrial eastern section. He reports a confident tone to business generally in these sections, with better business already evident at many points. Automobile buying will be greatly benefitted as a result of this business stimulation, he said.

## Service Managers Bureau Is Organized at St. Louis

**New Association Is Sponsored by Auto Dealers' Association—26 Firms at Opening Meeting**

ST. LOUIS, April 11.—A service managers' bureau has been formed, under the auspices of the St. Louis Automobile Dealers' Association. The meeting at which the new branch of the association was formed was held on the call of Robert E. Lee, secretary of the association. There were 26 automobile firms represented.

John O. Lowell, service manager of the Vesper-Buick Automobile Co., was elected chairman and Wm. G. Miller of the Stewart-Warner company was elected vice-chairman. The officers are to serve but three months until further action is taken. Mr. Lee will serve as secretary of the organization in order to keep it in close touch with the automobile dealers.

In outlining the purposes of the bureau Mr. Lee told the service men that it was for the purpose of bringing together the service managers and shop foremen of St. Louis for the mutual benefit of their employers and themselves to encourage discussion of service problems and shop problems; the comparison of views on handling the public and the employment of mechanics; the elimination of lost time and lost motion in shops and the betterment of service to the public.

## General Motors Will Move Research Division to Detroit

NEW YORK, April 11.—The General Motors Research Corporation of Dayton, O., will be moved to the General Motors laboratories connected with the General Motors Building in Detroit as soon as arrangements can be completed, it has been revealed by Alfred P. Sloan, president of General Motors Corporation.

Several factors combined to bring about the move. Foremost is the opening of the new General Motors proving grounds at Milford, Mich., 35 miles north of Detroit. Most of the work on new cars is being done there, and in the large garage and workshop adjoining the proving grounds. Another object is to provide closer co-ordination of the research corporation's activity with the engineering and research departments of the car and truck divisions of General Motors.

An important part of the research corporations' work ended with the successful conclusion of experiments leading to the discovery of tetra-ethyl-lead. The only work that is being done at Dayton that cannot be handled readily at Milford or in the laboratories at Detroit is the foundry department, and this, it is expected, will be combined with a foundry in one of the company's factories.

## Seventeen Entries Named for French Grand Prix Race

**Event Is for Cars of 22 Cubic Inch Displacement, One Man Aboard and Will Be 620 Miles**

PARIS, April 7.—(By Mail)—The entry list has been definitely closed with a total of 17 cars for the French Grand Prix race to be run at Monthery, 20 miles from Paris, July 26. This event is for cars of 122 cubic inch piston displacement with two-seated bodies and one man aboard, the distance to be 620 miles. The starters will be 5 Bugattis, 4 Delage, 3 Alfa-Romeo, 3 Sunbeam, and one each Mathis and Thomas Special.

Bugatti will race with straight eight engines without supercharger; Alfa-Romeo will have the same number of cylinders with a supercharger; Delage will have twelve cylinder supercharged engines, Sunbeam will have supercharged sixes, Mathis, a supercharged straight eight, and the Thomas Special will have a piston displacement of only 91½ cubic inches.

In conjunction with the 122-inch race, the Automobile Club of France will hold a limited fuel piston displacement race on the same circuit on July 19. The lists for this have just closed with 25 cars in the three classes, the firms represented being Steyr, Peugeot, Cottin-Desgouttes, Diatto, Mathis, E. H. P., Bugatti, and Darracq.

A special set of roads, about seven miles round, are being constructed, to be linked up with the Monthery track, for these two races.

### NEW HASSLER DISTRIBUTORS

INDIANAPOLIS, April 13.—The state distribution of Hassler shock absorbers, formerly conducted by the Hassler Indiana Co., has been taken over by the Robt. Hassler, Inc., factory and the Brice Automobile Service Co. of South and Meridian streets, which has been given distribution and service for this city and county.

## Case Company Announces Large Price Reductions

RACINE, April 11.—The J. I. Case T. M. Company has recently announced a reduction in price of \$100 on all "X" models of Case cars. The 7-passenger touring and 7-passenger sedan comprising the line on the "Y" chassis have also been cut in price \$250 and \$350 respectively. The "J. I. C." model is continued without any change. The following schedule shows the old and new prices on the "X" and "Y" models.

	Old Price	New Price
<b>"X"</b>		
3-pas. Roadster	\$1,670	\$1,570
5-pas. Touring	1,695	1,595
5-pas. Sub. Coupe	2,390	2,290
5-pas. Victoria	2,390	2,290
5-pas. Sedan	2,485	2,385
<b>"Y"</b>		
7-pas. Touring	2,475	2,225
7-pas. Sedan	3,325	2,975

## Drives 300 Different Makes in 16 Years

LONDON, April 10.—Prince Nicholas of Roumania has personally driven about 300 different makes and types of automobiles in the sixteen years he has been a motorist. The Prince gave this information in a letter received this week by S. F. Edge, governing director of a large British motor car factory.

### VOTE \$25,000 FOR CAMPAIGN

NEW YORK, April 11.—Indorsing the sales promotion campaign conducted last year by the Society for Electrical Development, representatives of all prominent electric truck and battery manufacturers met here recently and subscribed a tentative budget of \$25,000 for a similar campaign for 1925.

In accordance with the budget approved by participating companies, a well defined program of sales promotion, dealing with the preparation and distribution of special articles for trade journals and newspapers, will be put into effect. There will also be special studies dealing with the logical relation of central stations to the electric truck industry.

During the past four years the number of electric trucks in use has shown an increase of 64 per cent.

## Franklin County Show Proves Most Successful in History

GREENFIELD, Mass., April 13.—The Franklin County Automobile Dealers' Association put on the most successful show in local history at the State Armory recently. There was an elaborate electrical display, the centerpiece being a lattice basket of colored lights. Over the stage was a large illuminated horse-shoe, with streamers of lights running to the corners of the hall. The side walls were covered with gold, blue and white panels. A fountain and a pergola covered with vines and flowers adorned the center of the floor.

Some 30 makes of cars were represented, and public interest in the exhibition ran strong with many prospects obtained. The only criticism was that not enough space was available for all who wanted a part in the show. Military bands furnished music.

### TIRE FABRIC PLANT TO BE BUILT

ATLANTA, Ga., April 13.—One of the largest plants in the South engaged in the manufacture of automobile tire fabric is to be established this year at Rome, Ga., by the Brighton Mills Co., of Passaic, N. J., according to an announcement recently made by company officials. The company controls about 1,000 acres adjacent to Rome, where the plant will be located, and present plans call for a plant that will represent an investment in excess of \$1,000,000.

## Association Is Formed by Sacramento Car Dealers

**Formation Follows Wait of Over Two Years—J. J. Jacobs Is Elected President**

SACRAMENTO, Cal., April 11.—After more than two years without a dealer organization of any kind, automobile dealers of Sacramento have formed the Sacramento Motor Car Dealers Association with a membership including the majority of the dealers in the county.

The following officers have been elected to serve indefinitely: President, J. J. Jacobs (Studebaker); vice president, George Barnes (Buick); secretary, Henry Spring (Jordan); directors, Jack Ballard (Lincoln), Henry Goodrich (Ford), Spencer Elliott (Star), and W. F. Maddox (Maxwell-Chrysler).

Meetings are held every other Friday noon at the Hotel Senator for a luncheon and general discussion of business conditions. Under an unwritten agreement any action taken by the association must receive the unanimous support of members.

### NEW AUBURN DEALERS

AUBURN, Ind., April 13.—The following dealers and distributors have been signed by the Auburn Automobile Company:

Holyoke Motor Sales Co., Holyoke, Mass., Ridge Motors, Lackawanna, N. Y., John R. Kinnear, Tonawanda, N. Y., Auburn Sales of Oneida, N. Y., Oneida, N. Y., Economy Motor Sales, Bailey Square, New Bedford, Mass., Hornell Auto Metal Works, Hornell, N. Y., Storage Battery Service Station, Tarentum, Pa., Central Garage, Lafayette, N. Y.

O. O. Zimmer, 609 S. 1st St., Champaign, Ill., Delaware Moon Motors Co., 1019 E. Orange St., Wilmington, Del., Oaks & Mullaney, East Aurora, N. Y., Mattern Motors, Inc., 170 Hillside Ave., Jamaica, L. I., N. Y., W. H. Flaherty, 321 West Main St., Springfield, Ohio, Motor Inn Garage, Sidney, Ohio.

The distributors follow:

F. H. Staton, Hamilton City, Cal., Sacramento Motor Co., 1327 K St., Sacramento, Cal., A. H. Hooke & Son, Turlock, Cal., Auburn Motor Sales, 2612 Shattuck Ave., Berkeley, Cal., E. W. Hopping, 1416 Cockspur St., London, S. W. 1, England.

## French Racing Cars Enter International 500 Mile Race

INDIANAPOLIS, Ind., April 13.—Three French racing creations have been entered in the International 500-mile race to be held at the Indianapolis Motor Speedway, May 30, it has been announced.

They are designed, built and entered by Albert Guyot, famous veteran of speed, under the Tricolor of France, who will captain the team and drive one of the cars in the big race at Indianapolis.

The two other pilots, although not announced with the entries made by Guyot, may be chosen from the best of France's younger generation of daredevils despite the fact that scores of prominent foreign pilots have placed their services at the disposal of the popular Guyot for duty in the Indianapolis event.



## Moeller Motors Announce Year's Production Program

**Output Includes from 3,000 to 5,000  
Dagmars and Approximately  
3,000 Taxicabs**

PHILADELPHIA, April 13.—The M. P. Moeller Motor Car Co., Hagerstown, Md., which has been organized to manufacture Dagmar cars, following the taking over by M. P. Moeller, of the Penn-American Motors Corp., of which he was preferred creditor, has an ambitious production program for this year.

Present plans call for the production of 3,000 to 5,000 Dagmars, including 1,000 6-70 and 2,000 6-60 models, in addition to the Moeller taxicabs. This will bring the output close to 8,000 motor vehicles. The company, which is already under production, has received an initial order from the Astor Cab Co., of Columbus Circle, New York, for 600 taxicabs similar to the Luxor, and it is expected that subsequent orders will bring the total to 1,500.

The Dagmar Motors Co., the Philadelphia branch, at 851 North Broad street, which has been financed to the extent of \$100,000, has been reorganized with John Reichard as president; Ray T. MacFarland, who has been in the motor car field for the last twenty-five years, as vice president and general manager, and Miss Mary Gallagher as secretary and treasurer. This branch now has an organization of ten salesmen, four service men and a night superintendent.

### ESTABLISH DISPLAY IN N. Y.

NEW YORK, April 11.—The Clucker & Hixson Co., has established complete merchandising facilities at 47 Murray street, New York, which provide not only desk room, but stock space and display facilities for automotive manufacturers which may be attended by either salesmen of this firm or of the firms represented.

The following manufacturers are now represented in New York through this organization: Perfection Gear Co., Chicago; Frank Rose Mfg. Co., Hastings; Lawrence C. Sweet Manufacturers, Los Angeles; Kay-Bee Mfg. Co., Los Angeles; Fostoria Screw Co., Fostoria, O.; General Piston Ring Co., Tipton, Ind.; National Cork Products, Newark, N. J., and Ringleader Mfg. Co., Richmond, Ind.

### TO MAKE WORLD BUS SURVEY

WASHINGTON, April 13.—A world survey of bus transportation is under way under the guidance of the Automotive Division of the Department of Commerce, with Chief Percy Owen in charge.

To secure the latest and most complete information available, questionnaires have been sent to offices of the Department in 35 foreign countries. First replies are expected in this city by the middle of April, and the work of informing the American automotive industry of bus development abroad will then begin.

## Tire Wrecking Collie Granted Pardon

BURBANK, Cal., April 13.—James Russell's tire puncturing Scotch collie is now at liberty on probation, his owner having promised police to train the animal to keep his teeth out of rubber.

The dog was taken into custody yesterday after three motorists in succession had complained against him, alleging he attacked their weak tires and bit them flat.

### PAY DEFERRED DIVIDEND

NEW TORONTO, Ont., April 11.—Another payment of deferred dividend on the preferred stock of the Goodyear Tire & Rubber Company, of Canada, Limited, is being made in conjunction with the regular dividends on both the preferred and prior preference stock. This announcement is contained in a letter addressed to the 2,211 Canadian shareholders of the company by C. H. Carlisle, vice-president and general manager, who states that for the past six months of the current fiscal year the company's production has exceeded that of any similar period since the company has been in business.

## Syracuse Plans to Stage Summer Automobile Show

SYRACUSE, N. Y., April 13.—The first summer automobile show ever held in this city will be in connection with the Syracuse Centennial Exposition June 3 to 13.

The Syracuse Automobile Dealers Association has agreed to take more than 100 booths in the great tents which will completely cover an immense public square in the heart of the city.

The exposition is expected to bring at least 250,000 visitors during the ten days, and dealers see in it an unusual opportunity to display their cars. The automobile section will be set aside for the exclusive use of the dealers.

An historical parade contrasting 1825 methods of transportation with the 1925 automobile, the growth of Syracuse from a salt making and fur trading post to the city where most of the automobile gears for the world are made, will be among features which the local automobile dealers will handle.

### GAS OUTPUT MAINTAINED

WASHINGTON, April 11.—During February the manufacture of gasoline was maintained at the highest daily average production on record, 28,200,000 gallons, states the Department of the Interior in reviewing statistics compiled by the Bureau of Mines. The figure represents an increase over the daily average production for the record-breaking month of January of 1,400,000 gallons or 5.2 per cent.

## Federal Truck Sales Show Large Increase Over 1924

**Gain Said to Be Result of New Models and By Addition of Dealers to Sales Organization**

DETROIT, April 11.—If the demand and output of Federal motor trucks so far this year can be taken as a serious criterion of industrial and commercial conditions throughout the country, business surely must be on the upward trend. M. L. Pulcher, president of the Federal Motor Truck Company, of Detroit, has announced that his organization more than doubled its sales for the fiscal quarter of this year, as compared with the first three months of 1924.

"We feel that this remarkable increase is due largely to the wide acceptance of the Federal-Knight truck, announced last summer," Mr. Pulcher said in his official statement. "This truck combines the strength of the Federal chassis and the long life of the Willys-Knight sleeve-valve engine."

### Sell Over 2,000

"The Federal-Knight came out in June and before the end of 1924 more than 2,000 were sold. Our output of this type since Jan. 1 has been exceptional. Demand for our heavy trucks, too, has been beyond our anticipation. This is due to the fact that during the past winter we have been able to sign hundreds of new dealers, who have been attracted to our franchise by the opportunities for increased business in the new Federal models."

With such a start for the new year Mr. Pulcher is most optimistic over the prospects for the year. He doesn't hesitate to predict that the current year will be the most successful since the beginning of this organization 15 years ago.

### BERLIN HAS TEST TRACK

WASHINGTON, April 13.—A special automobile test track has been built between Berlin and a suburb, Dannsee, says a report to the Department of Commerce. The test track consists of two parallel roads completed at both ends by a circle. It is known by the name "Avus" and was built by the automobile manufacturers and the city.

When races or tests are held, it is blocked for regular traffic. Another use to which it is put is to produce publicity for manufacturers. One manufacturer recently ran a 240 hours continuous test of his machine to prove the small wear in evidence under this terrific strain. Chauffeurs were changed every four hours on the fly and the results were freely advertised in the trade papers and the German press.

### TOLEDO REGISTRATIONS UP

TOLEDO, April 11.—Automobile registrations in this city for the first quarter of the year showed a little more than ten per cent gain over the same period a year ago.

## March Production Biggest in Willys-Overland History

**24,300 Cars Are Produced By Different Plants—Sales Gain Is 38 Per Cent Over Last Year**

TOLEDO, April 6.—A new record month's production was established by the Willys-Overland Co., here in March when 24,300 cars were produced. At the same time it was announced that returns from dealers indicated a sales gain of 38 per cent over the same month last year which was the previous high mark in production.

This mark is typical of all of the automotive plants. Last week there was a gain of 707 employees in 51 plants and employment still tops the same time last year.

"Never before has the outlook for Willys-Overland looked better," declared President Willys in commenting on the March business just before he left the city for the southwest.

"During March we built 5,200 Willys-Knight cars. We have reached a production of 250 Overland Sixes a day. Our output of Willys-Overland four-cylinder models has been nearly 600 cars a day and the majority of these are closed types, particularly the all-steel sedan model.

"Unlike the situation a year ago which began to show a diminution of business with the beginning of the second quarter, all evidence indicates that there is a steadily increasing demand for automobiles this spring."

### RETURNS TO DEALERSHIP

SALT LAKE CITY, Utah, April 11.—A. E. Beveridge has opened up again as the Beveridge Motor Co. This firm was one of the best known in the business here until Mr. Beveridge temporarily retired from the field about five years ago, selling out to the Taylor-Richards Co. of Motor ave., which was then organizing to handle Ford cars. The new Beveridge organization will sell Fords and Lincolns and will have a new home on South Main street.

### TRAIN OF NASH CARS

SAN FRANCISCO, Cal., April 11.—Fifty-six freight cars loaded with Nash automobiles reached California in one train, nearly half a mile long, one week recently, and were distributed to dealer points throughout the state. There were 219 automobiles in the train, and 15 of the 56 carloads came to San Francisco. "The reality of the prosperity of California, and the fact that automobile sales are on the increase, is evidenced by this shipment," said C. J. Simpson, vice-president and general manager of the Pacific Nash Motor Co.

## Camel Caravan Steps Aside for Motor Transportation Across Syrian Desert

WASHINGTON, April 11.—The automobile has supplanted the camel caravans on the Syrian desert and this difficult barrier to trade has been transformed into an important highway of commerce and travel, Consul Gregg Fuller informs the Department of Commerce in a dispatch from Teheran, Persia.

Along the old routes where two years ago only the camel caravans could safely travel, American motor cars are now making their regular trips from Aleppo to Bagdad, from Bagdad to Beirut, from Beirut to Damascus and by stations with a precision and dispatch that is looked upon as a harbinger of a new era of commercial and economic development.

The trip from London to Bagdad can now be completed in seven days instead of 22 to 25 days as formerly. Business men can reach the Persian Gulf from Europe in one-third the time previously required.

### LAMP OUTPUT INCREASES

DETROIT, April 11.—The following additions have been made to the list of distributors of the type 20 headlamp of the Edmunds & Jones Corporation:

Watson Stabilator Co., Wilkes-Barre, Pa., National Tire Co., Pittsburgh, Motor Accessories Co., Allentown, Pa., McCarthy Bros., Philadelphia, Garrett Electric Motor Service, Charlotte, N. C., Maine Motor Mart, Portland, Me., Myers Accessory House, Harrisburg, Pa.

Legislation for safer motor lights is going forward in many states, said George E. Edmunds, president of the company, commenting on the increased representation for the type 20 lamp. The fact that this lamp meets all legal requirements and also provides constant illumination without need for dimming is the important factor in the rapid extension of its distributing organization, he said.

## Kissel in Production on Funeral Cars as New Line

HARTFORD, Wis., April 11.—Kissel Motor Car Co. has started production on a number of funeral cars, marking its entrance upon a new field of activity which the company believes has great promise. The new Kissel hearses are built on the standard Kissel chassis and are hung about three inches lower than the ordinary hearse. The cars were designed by Kissel engineers and the bodies are custom built in the Hartford factory.

Total sales for the Kissel company in the week ending March 28 were the largest in the organization's history for a single week except on one occasion. Sales for the week ending March 28 exceeded the same week of last year by 405 per cent. March sales showed a gain of 310 per cent over March, 1924. The company has increased its working force 50 per cent since stepping up production and by the end of April expects the employment figure to be at the highest point in Kissel's 19 years of existence.

### NEW DURANT DEALERS

NEW YORK, April 11.—The following automobile merchants have recently taken over the sale of Star or Durant products:

Canal Point Garage, Canal Point, Fla.; H. B. Gay, Midland City, Ala.; Brown Automobile Co., Rockwood, Tenn.; Frank W. Wentworth & Sons, Dover, N. H.; Charles S. Gates, Bellows Falls, Vt.; J. S. Craycraft, Manchester, O.; Marshall Brothers,

## Ford Assembly Plant Now Operating at Jacksonville

DETROIT, April 11.—The new Ford assembly plant at Jacksonville, Fla., is now in operation. Approximately 600 men are employed on an eight hour day, at which the plant has capacity for 150 cars daily. Separate display rooms for Ford cars, trucks and tractors and Lincoln cars are maintained. In addition to an improved body oven, the second of its kind in the United States, the plant contains a complete glass cutting and grinding department.

The plant is built on the banks of the St. John river, with facilities for delivery and shipping by rail and boat. The dock, 460 by 300 feet, affords 138,000 feet of storage space, and is used both by ocean-going and river boats. The Ford ship Oneida has called twice, discharging 500 tons of cargo each voyage. Commercial cargo is carried from Jacksonville as space affords. Territory served by the plant has a population of 1,750,000 persons, who own 150,000 Ford vehicles.

### DOUBLE NUMBER OF EMPLOYEES

BUFFALO, April 11.—Covert Gear and Manufacturing Co., which was recently organized from the Covert Gear Co., will invest \$400,000 to be used as working capital in the operation of its plant at Lockport, N. Y.

More than 100 men are now employed in the plant which was taken over from the old company and it is expected that the number will be increased to 200 within a few weeks.

Shelbyville, Ind.; Tharp & Jones, Clovis, N. M.; J. J. Cutler, Portales, N. M.; Otto Eber, Sealy, Tex.; Pouncey & Low, Brownwood, Tex.; Baugh Motor Co., Wellsville, Utah; Lee & Miner, Montrose, Colo.; Burch-Buell Motor Corporation, Rochester; Harry W. Starlin, O'Neill, Neb.; Akron Star-Durant Co., Akron.

Frank J. Luepnitz, Moran, Mich.; Ivon C. Waite Garage, Grand Haven, Mich.; S. G. Moyer & Son, Nappanee, Ind.; Kowalski & Gabrysiak, Rogers City, Mich.; Duffey Auto Repair Co., Chagrin Falls, O.; Thorpe & Hooper, Dowagiac, Mich.; Bjeland Brothers, Hoffman, Minn.; Lende's Garage, Granite Falls, Minn.; Stordahl & Wilson, Madison, S. D.; Ortonville Auto & Machine Co., Ortonville, Minn.; Siemer-Morgan Motor Co., Faribault, Minn.

Wm. L. Calloway, Great Mills, Md.; Elmer Huffman, Mt. Pleasant, Penn.; N. Coenan, Jeannette, Penn.; Bolon-Perkins Motor Co., Bethesda, O.; Coal Street Garage, Osceola Mills, Penn.; A. Henson & Son, Griggsville, Ill.; Hecker Garage Annex, Hecker, Ill.; Ashford Motor Co., Rosiclare, Ill.; Frederickson Service Co., Collinsville, Ill.; Madison Motor Co., Alton, Ill.; Monroe City Auto Co., Monroe City, Mo.





## Along Automobile Row



**LOS ANGELES**—Geo. L. Moskovics, for several years sales manager of the Pelton Motor Co., distributors of the Marmon in Southern California, has been appointed Pacific Coast manager for the Stutz line. G. L. Moskovics is a brother of Fred Muskovics, president of the Stutz company. He has announced that coast headquarters will be maintained in Los Angeles.

**EVANSTON, Ill.**—The Tracy Holmes Motor Company, dealers in Paige and Jewett cars, has recently moved into expanded quarters at 1029 Davis Street. The company is now occupying quarters nearly four times as large as formerly.

**PONTIAC, Mich.**—A. J. Banta, one of the best known automobile dealers in Chicago, recently has been appointed Assistant General Manager of the General Motors Truck Company, Pontiac, Mich.

**ATLANTA**—Among the new automobile dealer firms that were organized and incorporated in the Southeast the latter part of March are included the following: Columbia Motor Car Co., Columbia, Tex., at \$25,000; McLain Motor Co., McLain, Miss., \$10,000; Eupora Auto Co., Eupora, Miss., \$15,000; Webster Motors Co., Inc., Minden, La., \$100,000; Bohnsack Auto Co., Jackson, La.

**CINCINNATI**—Papers have been filed with the secretary of state authorizing the increase in capital stock of the Gambrius Garage & Storage Co., from \$100,000 to \$125,000. Edward Boss is president and Andrew Yauch secretary of the company.

**SEATTLE**—J. G. Tennant, formerly Vice-President of the Tennant Finance Corporation, 2447 South Michigan Avenue, Chicago, has again entered the automobile business, this time as Sales Manager of the Maxwell-Chrysler interests of this city.

**KNOXVILLE, Tenn.**—The burial of Greenwood Cemetery here last week, of Col. Wm. J. Oliver marked the passing of a distinguished engineer, road builder and manufacturer of Tennessee. Col. Oliver was a close friend of the late President Roosevelt. He also was noted for his promotion in road building.

**CLEVELAND**—Wilbur Grace has been made retail sales manager of the Paige-Ohio Co., 2020 Euclid Avenue. Mr. Grace formerly sold Paige cars in this city from 1915 to 1917.

**WINSTON-SALEM, N. C.**—A charter has been granted the Piedmont Motor company, Winston-Salem, with authorized capital of \$100,000 and \$25,000 subscribed by J. T. Barnes, Jr., J. D. Hunt and R. E. Lasater all of Winston-Salem.

**WASHINGTON**—David S. Hendrick will henceforth handle Chandler cars in Washington at 1012 Fourteenth Street northwest. Mr. Hendrick is one of the pioneer dealers of the city, dating his connections back to 1912.

**MEMPHIS**—The Union Chevrolet Company has been formed to handle retail sales in Memphis and adjacent territory. B. F. McGreery is president, Estes Armstrong is salesmanager and secretary and B. W. Richmond, service manager. Several counties in Tenn., Ark., and Miss., also will be looked after.

**DANVILLE, Ill.**—S. L. and C. A. Worthington, both of Danville, have purchased the Lummins Auto Company of Crawfordsville, Ind. They have been Ford dealers for a number of years and have conducted sales agencies at both Watseka and Milford, in Illinois, and at Attica, Indiana. It is expected that C. A. Worthington will be in charge of the Crawfordsville plant, while his brother will look after their interests in Danville.

**STOUGHTON, Wis.**—F. J. Veal, president of the Stoughton Wagon Co., of this city and Carl Bychholz, general superintendent of the body department, have been making an extensive tour of eastern markets for the purpose of building up a more complete distributing organization. The production of the plant is being increased

and it is expected that by June 1 more than 300 men will have been added to the payroll.

**DES MOINES, Ia.**—The Packard Iowa Motor Co., Des Moines dealers for Packard have moved from the Grand avenue location to 1101 Locust street.

**FROST, Texas**—The Sheppard-Bason Motor company of Frost, Texas, with a capital stock of \$30,000, has been chartered. Among the incorporators are E. J. Sheppard, J. C. Beck and R. O. Bason.

**CHILLOCOTHE, Mo.**—The Skinner Brothers Motor Company has taken the Hudson and Essex agency in Chillicothe. These cars formerly were handled by the Pigg and Tucker garage.

**CINCINNATI, O.**—The William Ware Auto Sales Co., has been chartered with an authorized capital of \$50,000 to deal in motor vehicles. Incorporators are William J. McCauley, James R. Clark, William R. Ware, Vern H. Wilson and Burtton E. Robinson.

**WASHINGTON, D. C.**—E. A. Roper, Jr., has been appointed sales manager of the Hoffman Motor Company, Rickenbacker distributor here. He was formerly in charge of the used car sales for the company.

**HOUSTON**—The Vaughan Automobile Supply Company of Houston has increased its capital stock from \$10,000 to \$15,000. The added capital will be used in carrying more complete stock of supplies and parts.

**FORT DODGE, Ia.**—The Fort Dodge Auto Company has taken over distribution for Velie in Fort Dodge.

**HARTFORD, Wis.**—Ed. Rippey, identified with the Kissel car in this territory for the past eight years, has been made the Kissel dealer for Washington county and open territory, according to an announcement just made by the Kissel Motor Car Company.

**OSCEOLA, Ark.**—The Fletcher Motor Company, owned by K. P. Fletcher of Osceola, agent for Fords, Fordsons and Lincoln automobiles, has been sold to a stock company of capitalists from Smackover and Camden. The title of the new firm is the Osceola Motor Company, with T. A. Laney, president; N. A. Dickerson, vice president, and D. S. Laney, secretary-treasurer and local manager.

**SAN ANTONIO**—The Paige-Jewett Company of San Antonio held open house when it opened its new salesrooms recently. F. C. Trabucco, president of the company, issued engraved invitations to the affair and hundreds of San Antonio and residents of nearby cities were present.

**DURHAM, N. C.**—Motor Supply & Tire Company of Raleigh, with authorized capital of \$100,000 and \$2,500 subscribed by C. H. Cosgrove, C. A. Richardson, Murray Allen, J. S. Cosgrove and M. S. Cosgrove, all of Raleigh recently has been chartered.

**TOWSON, Md.**—The Bonney Forge and Tool Works, Allentown, Pa., long established as manufacturers of Drop Forged Wrenches and Pioneers of the Chrome Vanadium Wrench, have consummated arrangements whereby G. W. Brogan, Inc., of Towson, will handle their advertising and act as merchandising counsel.

**BUFFALO**—Hertzog Motor Co., Inc., of Buffalo, has the distribution of the Gardner car for Buffalo and the Buffalo territory. The company has been for some time distributor of the Sterling-Knight, and retains this make.

**GREENSBORO**—The Durant Motors, Inc., announces the establishment of a wholesale office for the sale of Star and Durant cars for North and South Carolina, at Greensboro. W. T. Minor, sales manager will be in charge.

**CAMBRIDGE, O.**—The Hartley Co. has been incorporated with a \$100,000 capital by M. L. Hartley, Dora I. Hartley, W. H. Hartley, Agnes W. Hartley and W. H.

Cornal to deal in automobiles and accessories.

**ST. LOUIS**—E. H. Busse, veteran automobile man in St. Louis, has been appointed manager of the wholesale department of the Benjamin Motor Co., Stutz, Cole and Velie distributors.

**BALTIMORE**—George J. Philbin, well known in the trade in Baltimore, has returned to Norwood Brothers, Inc., Willys-Overland dealers, as sales manager.

**CLEVELAND, O.**—The Dennison Motor & Welding Co. has been chartered with an authorized capital of \$10,000 to deal in motor vehicles and accessories. Incorporators are C. O. Mayberry, H. E. Elliott, R. T. Elliott, R. E. Raines and A. L. McCloud.

**EUREKA, Ill.**—C. S. Holman has sold his interest in the Holman-Deck Motor Company here to Frank B. Iliff of Minonk, who with J. M. Deck will continue the business. Iliff has been engaged in the automotive business in Minonk for many years. The company will distribute Ford cars in the Woodford county territory.

**CANTON, O.**—Papers have been filed chartering the Scott & Sanderson Motor Co., with an authorized capital of \$10,000 to deal in automobiles, parts and accessories. Incorporators are Charles L. Scott, Frederick N. Sanderson, James B. Arlington, Price Janson and Catherine Zeiger.

**ST. LOUIS, Mo.**—O. Kessler and his associates have formed the Kessler Motor Car Co., Inc., and are engaged in the used car business at 1805 Russell avenue.

**OKLAHOMA CITY**—O. L. Youngs has been appointed Oklahoma City district manager of the Oakland Motor Car Co., succeeding H. E. Lewis, resigned. Mr. Youngs has been connected with the sales organization of Dodge Brothers for the past eight years. His territory for Oklahoma will include the entire state of Oklahoma with portions of Texas and New Mexico.

**SPRINGFIELD, O.**—The Ruby Products Co. has been incorporated with a capital of 2,000 shares, no par value, designated by Harry W. Ruby, William J. Grim, Volney F. Front, Harold G. Griffin and E. C. Newford to deal in automobile and radio accessories.

**CINCINNATI**—Manager Walter Zimmerman, of the Cincinnati branch of the Olds Motor Works, has announced that the Reising Auto Sales Co., 2717 Colerain avenue, has been made associate dealer in the Cumminsville district.

**OAK PARK, Ill.**—The Oak Park Kissell Sales Company has been organized here with capital stock of \$10,000. A garage and sales agency has been opened at 1028 Madison street. The company will distribute various makes of motor cars and also handle a line of accessories. The incorporators comprise W. C. Kramer, A. H. Delinde and Thomas A. Warren.

**CINCINNATI**—Maxwell and Chrysler dealers held a sales meeting in the Business Men's Club recently at which A. T. Stanton, sales promotion manager from the factory, spoke on "Sales and Service." Robert Sloan was master of ceremonies at a dinner which preceded the business deliberations.

**AKRON, O.**—Akron is the location of a recent corporation capitalized at \$25,000 under the name of the E. M. T. Motor Sales Co., to deal in automobiles. Incorporators are Clyde Evans, R. B. Meade, Mary Schauer, T. Lee and M. F. Hammer.

**WASHINGTON**—E. A. Watson has been appointed manager of the local branch of the Locomobile company here. He had been identified with the interests of W. C. Durant since 1914.

**SALEM, N. C.**—Sanford Motor Company, Mocksville, with authorized capital \$100,000 and \$30,000 subscribed by C. C. Sanford of Mocksville and R. C. Vaughan, of Winston Salem recently has been chartered.

## With the Associations

### Organize Salesmen Association

FORT WORTH, Tex., April 11.—Jack Harvey of the Foster Jennings Co., is president of the new Automobile Salesmen's Association recently organized here. The club composed of automobile salesmen will be a luncheon club with weekly meetings. Its purpose is to develop a better feeling among the salesmen and to stimulate the automobile business.

Other officers of the association are Bob Logan of Percy Grant Motor Company, vice-president; Tom D. Lewis of Packard-Scruggs company, secretary and treasurer.

The club is the first of its kind in the South and the fifth in the United States. It has the hearty endorsement and cooperation of the automobile dealers and the trades association.

### Oregon Re-elects Dunne

PORTLAND, April 16.—Joseph E. Dunne was re-elected president and George Brandenburg renamed manager at a recent meeting of the Oregon State Motor Association. Reports from officers showed considerable progress had been made during the year.

### Black Appointed Chairman

ATLANTA, April 11.—D. C. Black has been appointed chairman of the legislative committee of the Atlanta Automobile Association, and the committee is already at work planning its campaign before the Georgia State Legislature when it meets in the summer. Present indications are that three bills will be presented that are of considerable interest

to the association. One of these would seek to have the motor bus in Georgia declared a common carrier, subject to the same rules and regulations as the railroads. The association has succeeded in defeating this bill the past three years. Another bill likely to come up would compel all manufacturers of tires sold in the state to stamp the date of manufacture thereon.

### Texas Show May 13-14

AUSTIN, April 11.—The Austin Automobile Dealers' Association is perfecting plans for the annual convention of the Texas Automobile Dealers' Association which will be held May 13 and 14. A banquet, a ball and a tour about the historical sections of the territory are planned. Governor Miriam A. Ferguson is being sought to speak to the automobile men, along the lines of legislation designed to produce more revenues for the state.

It is expected the biggest attendance in the history of the association will be present because of the central location of the city, the good highways leading to it and the importance of matters to be considered by the dealers.

### Hold Successful Show

GREENFIELD, Mass., April 11.—The Franklin County Automobile Dealers' Association recently held its most successful show in the State Armory. Some 30 makes of cars were represented and dealers assert that many prospects were obtained in addition to the sales actually closed during the exhibit.

### Discuss Convention Plans

ST. LOUIS, April 11.—Plans for the National Association of Tire Dealers' convention, Nov. 17, 18 and 19 were discussed at a meeting of the Associated Tire Dealers of St. Louis. A. P. Woehrle, president of the local association, is devoting much time and thought to the contemplated meeting. The building for the assembly has not been selected as yet. A downtown location is being sought. It is expected that 1,000 men and 100 women will attend.

The plan of imposing a license tax on the tire dealers to keep out of the tire field firms which rely mainly on some other commodity for their income was discussed and it was decided to seek the passage of a city ordinance rather than a state law to provide such regulation.

### Battery Association Formed

BIRMINGHAM, Ala., April 11.—Organization of the Birmingham Battery Dealers' Association, to be affiliated with the Alabama Automotive Trades Association, was completed at a meeting and luncheon held here recently.

This is the first of a number of organizations that will be perfected among the automotive men in Birmingham to work as units of the Alabama Automotive Trades Associations.

The officers were elected: L. S. Currie of the Birmingham Electric Battery Company president, H. H. Wansley vice-president, Alex McElroy chairman of the board of directors, I. B. Richardson, H. S. Banton, Charles Woodward and Ed Henley members of the board, Jim Farley, secretary and treasurer.

### START WORK ON NEW FACTORY

MILWAUKEE, Wis., April 11.—Work on a five-story factory building has been begun by the Seaman Body corporation here which will provide an additional floor space of 155,000 square feet. Completion of the plant will provide employment for 1500 additional workers. The company has been running 24 hours a day for the past year to produce bodies for the Nash Motors company.

With the Ajax Motors company contract for 20,000 closed cars as its initial order, it has been found necessary to expand the plant facilities with the new building in order to be able to keep up with the demands which will be made upon it. The Ajax and Nash companies will control the entire output of the company.

### PUMP COMPANY EXPANDS

INDIANAPOLIS, April 11.—The Indianapolis Pump and Tube Co. of this city, which makes a line of tire pumps and automobile heaters, with factories here and in Connersville and Greenwood, to-

day announced that it will put in an additional plant at Columbus, Ind., which will specialize on the manufacture of heaters. The new plant which is now being equipped in Columbus will have a floor space of about 50,000 square feet. The Indianapolis plant and the central offices will continue here. The new plant, it is said, will employ about 100 men. Quinton J. Noblitt is president of the company and Frank Sparks vice-president and manager.

### WHITE HAS GOOD YEAR

NEW YORK, April 11.—The White Motor Co. and subsidiaries report for the year ended December 31, 1924, net income of \$4,084,248 after charges, equal to \$8.17 a share on the 500,000 shares of capital stock outstanding, against \$6,964,665 or \$13.93 a share in 1923. Gross sales amounted to \$46,574,737 as compared with \$48,876,606 for 1923. The value of the company's finished trucks, finished parts, materials in process, raw materials and supplies was placed at \$14,547,102 at the end of 1924, as compared with \$14,668,034 at the corresponding time in 1923.

### Paris New Car Registrations Over 200,000 for Four Years

PARIS, April 6.—(By Mail.)—In four years—from 1921 to 1924 inclusive—209,605 new automobile registrations have been shown for Paris and the immediate neighborhood comprising the Seine department. During the same period 121,354 new driving licenses have been issued.

In France an automobile registration is good for the duration of the car and a driving license, once obtained, may last a lifetime, unless revoked for some grave fault. Compared with 1913, the number of new driving licenses issued by the Paris authorities increased last year 292 per cent, and the number of new cars put into service increased 428 per cent.

These official figures show that in Paris only, the average increase during the last four years in the number of automobile drivers is 30,338, and the average increase in cars is 52,401. For the car figures a certain deduction must be made for replacements.



## Merchandising Committee Studying Jobbers' Methods

### Through Survey N. S. P. A. Hopes to Assist Members in Securing Profitable Business

DETROIT, April 13.—The National Standard Parts Association through its executive office here, which is acting under the direction of the merchandising committee, is conducting an investigation into methods being used successfully by jobbers in merchandising parts. This is part of a big program through which the organization hopes to assist its members in increasing profitable business.

As its first step in this inquiry, the committee set about to determine the ten most important replacement parts, which move is to be followed by the collection of ideas from all parts of the country as to the methods that have been found most successful in handling these particular items of merchandise.

#### Will Make Report

C. B. Fraser, secretary of the association, headquartered tentatively at 2539 Woodward avenue, Detroit, announces that the investigation will require about six or eight weeks before completion. Upon its completion a comprehensive report will be made embodying the committee's findings. The work already done, says Mr. Fraser, clearly shows that this report will contain a fund of extremely useful information to anyone interested in parts jobbing.

Among the main lines of activity undertaken by the association is development of a plan for catalog standardization. In dealing with this problem the N. S. P. A. has recognized three essential steps—standardization of type page size, punching and binders.

#### Pages Are Adopted.

This already has been done. The official N. S. P. A. standard catalog page and binder have been adopted. The size of the page is 7½ by 10½, with an extra inch of width for loose leaf sheets. The size of the type page is 6 by 9 and the Kalamazoo, style "H", Loose Leaf Binder has been adopted as the standard for binder and style of punching. These standards are the same as those of the A. E. A. By following them, it is argued, the manufacturer will at least enable jobbers to make up uniform catalogs from loose leaf sheets or electros which it is believed would be a big step forward.

Mere standardization of size, however, is not considered sufficient, it being held that the manufacturers need some concrete statement of the standards. Accordingly, a sample catalog form has been prepared by the association containing complete information on the N. S. P. A. standards covering everything from page size to detailed printer's instructions and sample specification. This form exemplifies the standards as well as stating them and will be distributed to

# Coming Motor Events

## Automobile Shows

Austin Aex.....	May 13-14
Texas Automobile Dealers' Association Show.	
Detroit.....	May 20-23
Second Annual Automobile Maintenance Equipment Show, General Motors Bldg. Conducted by National Automobile Chamber of Commerce with co-operation of Motor and Accessory Manufacturers' Assn., National Automobile Dealers' Assn., Society of Automotive Engineers, Automotive Equipment Assn., Automotive Electric Assn., and Automotive Manufacturers' Assn. Sam Miles, Manager.	
Goldsboro, N. C.....	May 4-9
Sixth Annual Automobile and Industrial Show. Chamber of Commerce, W. C. Denmark, show manager.	
Syracuse, N. Y.....	June 3-13
First Summer Automobile Show in connection with Centennial exposition.	

## Races

Charlotte, N. C.....	May 11
Fresno, Cal.....	April 30
Indianapolis, Ind.....	May 30

## Conventions

Houston, Tex.....	April 21-25
Annual conventions of United States Good Roads Association, Bankhead National Highway Association and the United States Good Roads Show.	
Pittsburgh.....	May 6-9
Ninth annual meeting, American Gear Manufacturers' Assn.	

## Foreign Shows

Bandoeng, Batavia.....	April 8-14
Automotive Exhibition by the Netherlands Indies Jaarbeurs.	
Budapest, Hungary.....	May 23-June 3
Royal Hungarian Automobile Club International Exposition for automobiles, motorcycles, motorboats and all connected industries.	
Melbourne, Australia.....	April 22-May 7
International Automobile Show, Chamber of Automotive Industries and Royal Automobile Club of Victoria.	
Milan, Italy.....	April 11-27
International Show.	
Sydney, Australia.....	April 1-17
Royal Agricultural Show, including automobile exhibits.	

## SIGN CHANDLER CONTRACTS

CLEVELAND, O., April 11.—The Chandler Motor Car Company announces appointment of the following new dealers:

A. E. Harnish & Son, Pomona, Cal., John F. Zak Motor Co., Sacramento, Cal., Chandler-Cleveland Sales of Stockton, Stockton, Cal., West Palm Beach Garage, West Palm Beach, Fla., H. L. Bernard, Clifton, Ill., H. G. Gerlach, DeKalb, Ill., R. M. Schimmel Sales Co., Inc., Elkhart, Ind., Payne Motor Co., Boone, Iowa, Weidner Motor Co., Ottawa, Kan., Mather & Harbaugh, Sharon Springs, Kans., Ephrem J. Couture, Sanford, Me., Joseph Farland, Waterville, Me., Charlevoix Motor Sales, 6337 Charlevoix Ave., Detroit, Mich., The Westlawn Garage, 12025 Grand River Ave., Detroit, Mich., Sheren-Richards Auto Service, Lansing, Mich., Hoile & Burgard Auto Co., Finlay, O., J. B. Duffy & Sons, Fostoria, O., W. F. Tittle, Jr., Kittanning, Pa., James C. Anderson, Nanticoke, Pa., H. D. Graham, Warren, Pa., Bush Motor Co., Woonsocket, R. I., G. R. & S. Motor Co., Appleton, Wis., Baker Motor Co., Beloit, Wis.

C. M. & W. Motor Co., 12942 Woodward avenue, Detroit, has been appointed Chandler distributor.

## NASH SALES SET RECORD

KENOSHA, Wis., April 13.—Sales records kept at the offices of the Nash Motors Co. here show that March was the biggest month in the history of the company. As compared to March, 1924, factory shipments for the past month showed an increase of 49 per cent.

According to E. H. McCarty, general salesmanager, the February new sales and production record was easily outstripped by March. About 2,000 bona fide orders for cars could not be filled for lack of automobiles, Mr. McCarty said.

## WILL HANDLE FLINT

FLINT, Mich., April 11.—F. C. Witt, general sales manager of the Flint Motor Company, has announced the following new dealers:

Steinmyer Brothers, Alman, Kans.; Jim Furlong Auto Co., Fort Collins, Colo.; Miller Motor Company, Paducah, Ky.; Shepard Motor Sales, Detroit, Mich.

all members of the association within the next month.

#### To Eliminate Duplicates.

The association is also taking steps looking to the elimination of duplicate specifications. Parts catalogs are all duplicates as far as correct specifications are concerned and these, so the association says, comprise the great bulk of the catalogs which now are being issued. The result, it is pointed out, is not only that an enormous amount of unnecessary printing is being done, but that the very object for which the catalogs are being produced, namely—to make it easier for the customer to purchase parts—is being defeated. It is suggested that the most obvious solution would seem to be in production of some master list giving specifications on all motors and motor vehicles and dimensional data on all the replacement parts. While it is admitted that this development may yet be some way off the N. S. P. A. looks toward the ultimate use of some such method.

In accordance with a decision reached at a meeting of the association's directors in Chicago earlier in the year, Detroit will be recognized as temporary headquarters until January, 1926. Just what will be done after that date about national offices has not been announced.

## Detroit New Car Deliveries for March Take Big Jump

**Total 6,980 as Compared to 6,824  
for January and February—Open  
Cars Far in Minority**

DETROIT, April 11.—New car deliveries in Detroit for the month of March totalled 6,980, which compares with a total of 6,824 for the first two months of the year combined, and with 8,368 for March 1924. Closed car deliveries in this month were 5,045, fourteen less than for March last year. Open car deliveries were 1,935, comparing with 3,309 in March, 1924. The truck total of 754 showed a gain over the 674 total a year ago. Tractor deliveries likewise increased from 12 to 28.

### Closed Cars Lead

Hudson-Essex delivered 530 closed cars as against 6 open. Throughout the entire list of manufacturers closed car deliveries were much heavier than open. Ford delivered 1,806 closed as against 1,149 open. Chevrolet closed car deliveries were six to one and Buick's practically ten to one. Closed car deliveries in the higher priced lines practically excluded open cars.

Deliveries of Ford cars totaled 2,955 or 42.4 per cent of the total business for the month. This compares with 56.8 per cent last year. All low priced lines including Ford made up 55 per cent of the total as against 71 per cent last year. Cars in the \$1,000 price class and under, including Ford and other low priced makes, made up 73 per cent of the total as against 80 per cent a year ago.

### Percentage Higher

Deliveries of medium priced cars in March this year were 23.6 per cent of the total as against 17 per cent last year. Higher priced cars showed a fractional increase.

Ford delivered 470 of the 754 truck total. Reo with 35, Dodge with 33 and Chevrolet with 20 followed in the light truck field.

## Tests Show Tire Wear Under Different Highway Conditions

PULLMAN, Wash., April 11.—Interest ing observations relating to the wear of automobile tires on various types of highways were developed in a series of tests made by the Engineering Experiment Station, State College of Washington, which is located here. A report on the tests is covered in a bulletin recently issued which is available, free of charge, to citizens of this state.

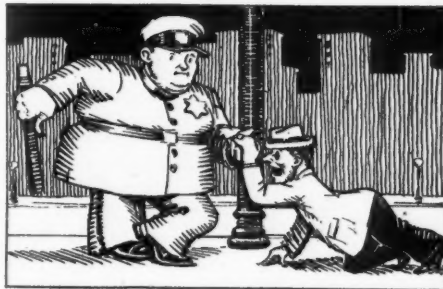
Following are high spots brought out in the report's recapitulations:

Automobile tire wear depends, in part, upon speed temperature and road surface.

Tests show that tire treads wear off approximately 17 times as fast on good macadam as on concrete and 56 times as fast on very poor macadam.



OR POSSIBLY ONE OF THE  
BOTTLES



Officer (picking up a man from curb at 4 a. m.)—"What yer doin' here. Did a car hit yer?"

Victim—"I guess sho."

Officer—"Wat kind of er car?"

Victim—"I shink it wush a Cabaret."

### FAIR EXCHANGE

Passing a farm orchard, the motorists stopped the car, climbed the wall, and gathered a peck of apples.

As they passed the farmhouse they slowed down and called to the owner: "We helped ourselves to your apples."

"Oh, that's all right," the farmer yelled back. "I helped myself to your tools while you were in the orchard."

—Crosley Radio Weekly.

### VOLUNTEER ASSISTANCE

First Lady—"We got a hundred dollar radio set and had the electrician come in and attach it."

Second Lady—"That's nothing. We had a five hundred dollar set and the sheriff came and attached it."

Tennessee Tar.

If it costs \$10 for gasoline to drive a car over a certain length of concrete road, it will cost \$11.13 to drive the same car over a good macadam road of the same length, and \$15.07 if the macadam is in very poor condition.

The rate of wear on tire treads in the test on above concrete road is \$.98; on the same length of good macadam, \$16.72; and on very poor macadam \$56.15.

### REO DEALERS HOLD OPENING

ST. LOUIS, Mo., April 11.—Formal opening of the Steiner-Fahrenkrog Automobile Co., new Reo dealer at 4000 Page boulevard, was held recently. About 1,600 people thronged the premises throughout the evening and the company provided music for dancing and served refreshments.

H. F. Fahrenkrog, secretary and treasurer of the new company, was connected with the Kardell Motor Car Co., Reo distributors in St. Louis from 1906 until recently. He was president of the St. Louis Automobile Dealers' Association for two terms.

### ANOTHER IDEAL CAR

#### Specifications

Power plant: One cylinder, one piston, one connecting rod, one spark plug.

Simplicity: Either goes or it doesn't.

Bore: None. Car always a pleasure.

Wheels: Optional. With or without.

Feed: Alfalfa.

Drive: Both hands.

Price: Your old car in trade. No extras.

—Asiatic Motor.

### HOW TO HANDLE A WOMAN ELECTRICALLY

When a woman is bored.....Exciter

If she gets too excited.....Controller

If she is willing to come half way.....Meter

If she is willing to come all the way, Receiver

If she is an angel.....Transformer

If she is a devil.....Converter

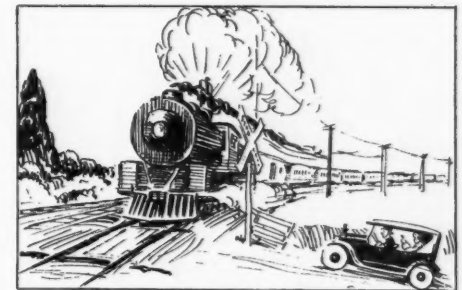
If she tries to double-cross you.....Detector

If your fears are right.....Arrester

If she is hungry.....Feeder

—Dennison Flamingo.

### ENCOURAGEMENT



She (as train toots at grade crossing)—  
"George, you go right ahead. Don't let that big brute bully you."

—Recorder.

tion for two terms. Harry Steiner, president of the new company, was with Kardell from 1910 until just recently in the capacity of a salesman.

### SCHOLARSHIP CONTEST ON

WASHINGTON, April 13.—The sixth competition for the \$4,000 Harvey S. Firestone Four Years University Scholarship, conducted under the Highway Education Board here, is announced with May 1 next as the closing date.

"Economies Resulting from Highway Improvement" will be the subject of the essays to be entered in the contest by high school students throughout the United States and 700 words the length limit.

Last year the scholarship was won by John Liska of Wisconsin Rapids, Wis., in competition with more than 200,000 contestants. The national judges were Secretary of Labor James J. Davis, Dr. W. C. Thompson, president of Ohio State University, and Merle Crowell, editor of the American Magazine.



# Prices and Weights of Current Passenger Car Models

SHIP.	WT.	PASS.	BODY STYLE	PRICE	SHIP.	WT.	PASS.	BODY STYLE	PRICE	SHIP.	WT.	PASS.	BODY STYLE	PRICE	SHIP.	WT.	PASS.	BODY STYLE	PRICE
<b>ANDERSON</b>			<b>"41"</b>																
2650	5-p		Touring	\$1,195	3400	5-p		Sedan	2,385	2995	5-p		"B" Sedan	1,095	1750	5-p		Touring	\$630
2675	4-p		Sp. Touring	1,445	3380	5-p		Victoria	2,290	3077	5-p		Spec. "B" Sedan	1,195	1880	3-p		Coupe	845
2925	2-p		Coupe	1,425				"Y"		3020	5-p		Sedan A	1,245	2020	5-p		Sedan	895
2875	5-p		Sedan	1,695	3950	7-p		Touring	2,225	3107	5-p		Spec. "A" Sedan	1,330	2130	5-p		Royal Sedan	995
2925	5-p		Sp. Sedan	1,895	4320	7-p		Sedan	2,975	2723	5-p		Coach	1,095					
					<b>CHANDLER</b>			<b>"SS"</b>		2823	5-p		Spec. Coach	1,195	<b>H C S</b>				
					3090	2-p		Roadster	\$1,795	<b>DORRIS</b>			<b>"6-80"</b>		3750	4-p		Touring	\$2,650
2975	7-p		Touring	1,595	3182	4-p		Roadster	1,785	4120	4-p		Pasadena Tour.	\$4,150	3950	4-p		Coupe	3,350
3200	7-p		Sedan	1,945	3084	5-p		Touring	1,595	4115	7-p		Touring	4,150	4010	4-p		Sedan	3,350
<b>APERSON</b>			<b>"6"</b>		3223	7-p		Touring	1,735	4193	4-p		Coupe	4,985	<b>HAYNES</b>				
3100	5-p		Sp. Phaeton	\$1,850	3284	4-p		Royal Dispatch	1,885	4200	5-p		Sedan	5,550	3295	5-p		Touring	1,600
3145	3-p		Coupe	2,350	3309	5-p		Coach	1,595	4310	7-p		Sedan	5,800	3765	5-p		Sedan	2,300
3470	5-p		Sp. Sedan	2,895	3309	5-p		Chummy Sedan	2,045					3560	5-p		Brougham	2,200	
					3469	5-p		Met. Sedan	2,195	<b>DUSENBERG</b>			<b>Straight "8"</b>		<b>HERTZ</b>				
3815	5-p		Phaeton	2,485	3428	5-p		Sedan 4 d.	1,995	3920	3-p		Roadster	\$6,500	3360	5-p		Sedan	\$1,695
3900	7-p		Phaeton	2,535	3521	7-p		Sedan	2,195	3700	5-p		Phaeton	6,250	<b>HUDSON</b>				
3955	5-p		Sport Phaeton	2,800	3598	7-p		Limousine	3,095	3920	7-p		Phaeton	6,750	3300	4-p		Speedster	\$1,400
3815	7-p		Sport Phaeton	2,909	<b>CHEVROLET</b>			<b>"Superior"</b>		3980	4-p		Sp. Phaeton	6,500	3425	7-p		Phaeton	1,500
4180	5-p		Sedan	3,485	1690	2-p		Roadster	\$525	4000	4-p		Coupe	7,500	3450	5-p		Coach	1,345
4200	7-p		Sedan	3,585	1790	5-p		Touring	525	4350	7-p		Sedan	7,800	3585	5-p		Sedan	1,795
4340	5-p		Sport Sedan	3,750	1880	2-p		Utility Coupe	715	<b>DU PONT</b>			<b>"D"</b>		3675	7-p		Sedan	1,895
4380	7-p		Sport Sedan	3,850	2070	5-p		Sedan	825	3300	2-p		Roadster	\$2,600	<b>HUPMOBILE "R" 4</b>				
					<b>CHRYSLER</b>			<b>"112 1/4 in. W. B."</b>		3550	5-p		Touring	2,600	2595	2-p		Roadster	\$1,225
					2805	4-p		Roadster	\$1,625	3550	7-p		Touring	2,750	2745	5-p		Touring	1,225
					2730	5-p		Touring	1,395	3800	5-p		Touring Sedan	3,400	2760	2-p		Coupe	1,350
					2785	5-p		Phaeton	1,495	<b>DURANT</b>			<b>"A-22"</b>		2860	4-p		Coupe	1,595
					2935	4-p		Coupe	1,895	2300	2-p		Roadster	\$1,080	2975	5-p		Sedan	1,800
					3060	5-p		Sedan	1,825	2225	5-p		Touring	830	2895	5-p		Club Sedan	1,375
					3085	5-p		Imperial Sedan	2,065	2300	5-p		Touring F. W. B.	940					
					3090	5-p		Crown Sedan	2,195	2395	4-p		Coupe	1,160					
					2995	5-p		Brougham	1,965	2505	5-p		Sedan	1,190					
					3225	5-p		Town Car	3,725	2430	5-p		Coach	1,050					
					<b>CLEVELAND</b>			<b>"31"</b>		<b>ELCAR</b>			<b>"4-41"</b>		<b>JEWETT</b>				
					2580	5-p		Sedan	1,105	2560	5-p		Touring	\$995	2835	4-p		Roadster	\$1,630
					2750	5-p		Touring	1,095	2585	5-p		Demi Sp. Touring	1,095	3015	5-p		Touring	1,205
					2810	5-p		Touring De Luxe	1,195	2641	5-p		Sportster	1,195	3015	5-p		DeLuxe Touring	1,320
					2830	3-p		Coupe	1,295	2779	5-p		Sp. Sedan	1,695					
					2870	3-p		Spec. Coupe	1,395	2900	5-p		Sedan	1,495					
					3040	5-p		Spec. Sedan 4 d.	1,495	2779	5-p		Brougham 8d	1,265					
					3190	5-p		Sedan De Luxe	1,695				Sp. Brougham	1,395					
					3190	5-p		Sport Sedan	1,725	2600	5-p		Demi Sp. Tour.	1,220					
					2990	5-p		Brougham	1,545				Sp. Touring	1,420					
					3000	5-p		Coach	1,295				Sp. Sedan	1,920					
					<b>COLE</b>			<b>"MASTER"</b>					Sedan	1,720					
					3675	4-p		Volante Tour.	\$2,325				Brougham	1,490					
					3795	7-p		West. Tour.	2,325				Sp. Brougham	1,620					
					3675	4-p		Aero-Vol. Tour.	2,475				"8-80"						
					4055	5-p		Brouette Sedan	3,225				Sp. Touring	2,165					
					4000	7-p		Royal Sedan	3,225				Sp. Touring	2,265					
					4100	7-p		Royal Limousine	3,325				Brougham	2,865					
					<b>CUNNINGHAM</b>			<b>"V-6"</b>					Sedan	2,265					
					4600	7-p		Touring	\$6,300				ESSEX						
					4500	4-p		Sp. Touring	5,800				2130	5-p		Touring	\$900		
					4700	4-p		Coupe	7,150				2305	5-p		Coach	895		
					5000	6-p		Sedan	7,650				<b>FLINT</b>						
					<b>DAGMAR</b>			<b>"6-70"</b>					4-p			Sport Roadster	\$1,950		
					3800	4-p		Sp. Touring	\$3,500				3145	4-p		Touring	1,595		
					4200	4-p		Petite Coupe	4,500				3310	4-p		Sp. Touring	2,050		
					3700	4-p		Phaeton	3,500				3455	4-p		Coupe	2,195		
					3750	4-p		Roadster	3,500				5885	5-p		Sedan	2,285		
					3800	6-p		Tourer	3,500					5-p		Brougham 4 d.	2,735		
					4200	4-p		Petite Sedan	4,500				2400	5-p		Touring	1,285		
					4500	4-p		De Luxe Coupe	4,750					5-p		Sedan 4 d	1,680		
					4700	5-p		Sedan	4,700				2720	5-p		Brougham	1,760		
					4800	7-p		Sedan	4,750				<b>FORD</b>						
								<b>"6-60"</b>					Without Starter and Dem. Rims						
					3100	2-p		Roadster	1,785				1369	2-p		Runabout	\$260		
					3200	4-p		Sp. Touring	1,785				1494	5-p		Touring	290		
					3150	5-p		Touring	1,985				With Starter and Dem. Rims						
					3400	2-p		Coupe	2,345				1521	2-p		Runabout	345		
					3500	5-p		Sedan	2,345				1644	5-p		Touring	375		
					<b>DANIELS</b>			<b>"24-38"</b>					1749	2-p		Coupe	520		
					4150	4-p		Touring	\$6,800				1927	5-p		Sedan, Fordor	660		
					4765	7-p		Touring	6,900				1882	5-p		Sedan, Tudor	580		
					4600	4-p		Sedan	7,600				<b>FRANKLIN</b>						
					5200	7-p		Sedan	7,800				2800	3-p		Sport Roadster	\$2,800		
					<b>DAVIS</b>			<b>"90"</b>					2845	5-p		Touring	2,650		
					2650	4-p		M. o'War Road.	\$1,495				2965	3-p		Coupe	2,700		
					2915	4-p		Legionnaire Tour.	1,495				3075	5-p		Sedan	3,200		
					2750	5-p		Phaeton	1,395				3080	5-p		Sport Sedan	3,350		
					3070	5-p		Sedan	1,995				3275	7-p		Limousine	3,500		
					3065	5-p		Berline Sedan	1,995				3185	7-p		Cabriolet	4,400		
					2700	5-p		Brougham	1,595				<b>GARDNER</b>						
								<b>"91"</b>					2520	3-p		Roadster	\$945		
					2835	4-p		Roadster	1,795				2545	3-p		Spec. Roadster	1,045		
					3020	5-p		Phaeton	1,695				2550	3-p		Radio Roadster	1,135		
					3245	5-p		Sedan	2,295				2610	5-p		Special Touring	1,095		
					3050	5-p		Brougham	1,895				2650	5-p		Touring De Luxe	1,145		
					3215	5-p		Berline Sedan	2,295				2590	5-p		Touring "A"	1,045		
					<b>DODGE BROTHERS</b>								2750	5-p		Radio Touring	1,145		
					2473	2-p		Roadster	\$855				2680	5-p		Coupe	1,275		
					2593	2-p		Special Roadster	955				2895	5-p		Sedan	1,475		
					2567	5-p		Touring	885				3070	5-p		Sp. Sedan	1,595		
					2695	5-p		Spec. Touring	985										
					2708	2-p		Coupe "B"	995										
				</															

# Prices and Weights of Current Passenger Car Models

SHIP.	WT. PASS.	BODY STYLE	PRICE
<b>LOCOMOBILE "48"</b>			
5030	4-p	Sportif. Tour.	\$7,460
5330	7-p	Touring	7,460
5600	5-p	Victoria Sedan	10,050
5464	7-p	Brougham	10,040
5868	7-p	Encl. Drive	
		Lim	10,050
5624	7-p	Cabriolet	10,300
<b>McFARLAN "6"</b>			
		"SV"	
3700	2-p	Roadster	\$2,650
	2-p	Spec. Roadster	2,900
3600	5-p	Touring	2,650
	7-p	Touring	2,750
3850	4-p	Coupe	3,100
	4-p	Coupe	3,180
3850	5-p	Sedan	3,180
	5-p	Spec. Sedan	3,180
3850	7-p	Sedan	3,280
	5-p	Sub. Sedan	3,380
	7-p	Sub. Sedan	3,480
	5-p	Brougham	3,180
	5-p	Brougham 4d.	3,180
	5-p	Coach Brougham	
		4d.	3,180
	5-p	Town Car	4,600
		"TV"	
4000	3-p	Roadster	\$5,400
4600	5-p	Sp. Touring	5,600
4700	7-p	Touring	5,700
4900	4-p	Coupe	6,720
5200	4-p	Tour. Sedan	6,720
5200	7-p	Tour. Sedan	6,810
	6-p	Sedan	6,720
	7-p	Sedan	6,810
	7-p	Spec. Sedan	6,810
	7-p	Enc. Sedan	7,110
	7-p	Sub. Sedan	7,110
5200	7-p	Town Car	9,000
<b>MARMON "74"</b>			
3470	2-p	Roadster	\$3,165
3666	5-p	Phaeton	3,165
3766	7-p	Touring	3,165
3861	5-p	Brougham Coupe	3,295
	3-p	Coupe de Luxe	3,455
3931	5-p	Sedan	3,295
3921	5-p	Sedan de Luxe	3,775
	7-p	Sedan	3,370
4036	7-p	Sedan de Luxe	3,850
4000	5-p	Sedan Limousine	3,900
4100	7-p	Sedan Limousine	3,975
<b>MAXWELL "25"</b>			
2130	2-p	Roadster	\$885
2275	2-p	Sp. Touring	975
2210	5-p	Touring	895
2410	5-p	Sp. Touring	1,055
2255	2-p	Club Coupe	995
2405	4-p	Std. Coupe	1,195
2440	5-p	Club Sedan	1,045
2580	5-p	Std. Sedan	1,095
2595	5-p	Spec. Sedan	1,245
2785	5-p	Trav. Sedan	1,585
<b>MERCER "6"</b>			
3860	3-p	Runabout	\$4,500
3950	4-p	Touring	4,500
3900	4-p	Sporting	4,500
4070	3-p	Coupe	6,500
4240	4-p	Sport Sedan	6,500
4350	4-p	Tour. Limousine	6,500
4300	5-p	Brougham	6,500
<b>MOON Series "A"</b>			
	3-p	Roadster	\$1,250
2440	5-p	Roadster	1,295
2460	5-p	Sp. Touring	1,195
2605	5-p	Sedan 2d	1,595
2755	5-p	Petite Sedan 4 d.	1,685
		Newport	
2760	5-p	Touring	1,495
2920	5-p	Sedan	1,815
3090	5-p	Petite Sedan	1,915
		Metropolitan	
2860	5-p	Touring	1,515
3120	5-p	Sedan	1,995
3190	5-p	Sp. Sedan	2,095
		London	
3270	5-p	Sp. Touring	1,985
3590	5-p	Petite Sedan	2,540
<b>NASH "Special"</b>			
2870	2-p	Roadster	\$1,095
2960	5-p	Touring	1,095
3120	5-p	Sedan	1,225
3270	5-p	Sedan 4d.	1,545
		"Advanced"	
		(121 in. W. B.)	
3320	3-p	Roadster	1,375
3400	5-p	Touring	1,375
3556	5-p	Sedan 2 d.	1,485
		"Advanced"	
		(127 in. W. B.)	
3480	7-p	Touring	1,525
3830	7-p	Sedan	2,290
3750	5-p	Coupe 4 d.	2,190
3640	4-p	Victoria	2,090
<b>OAKLAND "6-54"</b>			
2420	3-p	Roadster	\$1,095
2510	3-p	Sp. Roadster	1,195
2485	5-p	Touring	1,095
2550	5-p	Sp. Touring	1,195
2620	5-p	Coach	1,215
2620	3-p	Landau Coupe	1,295

SHIP.	WT. PASS.	BODY STYLE	PRICE
2720	4-p	Coupe	1,495
2700	5-p	Spe. Sedan	1,375
2860	5-p	Sedan	1,545
2885	5-p	Landau Sedan	1,645
<b>OLDSMOBILE "30"</b>			
2145	2-p	Roadster	\$890
2270	2-p	Sp. Roadster	985
2200	5-p	Touring	890
2360	5-p	Sp. Touring	1,015
2330	2-p	Bus. Coupe	1,045
2460	4-p	Coupe	1,175
2410	5-p	Coach	1,075
2570	5-p	Sedan	1,285
2740	5-p	DeLuxe Sedan	1,375
<b>OVERLAND "91" 4</b>			
		(100 in. W. B.)	
1769	2-p	Roadster	\$495
1863	5-p	Touring	495
2177	5-p	Sedan	715
2130	5-p	Coupe Sedan	585
		"93" 6	
		(113 in. W. B.)	
	5-p	Sta. Sedan	985
	5-p	Sedan De Luxe	1,150
<b>PACKARD "6"</b>			
		(126 in. W. B.)	
3643	4-p	Roadster	\$2,785
3653	5-p	Touring	2,585
3595	4-p	Sp. Touring	2,750
3753	4-p	Coupe	2,585
3876	5-p	Coupe	2,685
3937	5-p	Sedan	2,585
3974	5-p	Sedan Limousine	2,785
		(133 in. W. B.)	
3793	7-p	Touring	2,735
4043	7-p	Sedan	2,785
4133	7-p	Sedan Limousine	2,885
		"8"	
		(136 in. W. B.)	
4060	4-p	Runabout	3,950
4090	5-p	Touring	3,750
4023	4-p	Sp. Touring	3,900
4242	4-p	Coupe	4,650
4337	5-p	Coupe	4,825
4528	5-p	Sedan	4,750
4535	5-p	Sedan Limousine	4,850
		(143 in. W. B.)	
4199	7-p	Touring	3,950
4655	7-p	Sedan	5,000
4710	7-p	Sedan Limousine	5,100
<b>PAIGE "21-24"</b>			
3875	4-p	Phaeton	\$2,165
3935	7-p	Phaeton	2,165
4050	5-p	Broug. De Luxe	2,395
4325	7-p	Sedan De Luxe	2,840
4370	7-p	Sub. Limousine	2,965
<b>PEERLESS "6-70"</b>			
3050	2-p	Roadster	\$2,335
3175	5-p	Touring	1,895
3350	7-p	Touring	1,995
3525	5-p	Coupe	2,495
3550	5-p	Sedan	2,565
3725	7-p	Sedan	2,765
3825	7-p	Limousine	2,925
		Equipped "8"	
3950	4-p	Phaeton	2,945
3995	7-p	Phaeton	2,990
4300	5-p	Town Brougham	3,895
4310	5-p	Town Sedan	3,895
4400	7-p	Sub. Sedan	3,995
4525	7-p	Berline Lim.	4,195
4100	4-p	Victoria Coupe	3,545
4150	5-p	Sub. Coupe	3,595
<b>PIERCE-ARROW "33"</b>			
4350	2-p	Runabout	\$5,250
4500	5-p	Touring	5,250
4730	3-p	Coupe	6,800
4800	4-p	Sedan	6,900
4960	7-p	Sedan	7,000
4750	4-p	Coupe Sedan	6,900
4730	6-p	Brougham	6,800
4850	7-p	Limousine	7,000
5060	7-p	Enclosed Lim.	7,000
4730	7-p	French Lim.	7,000
4730	6-p	Landaulet	7,000
		"80"	
3205	2-p	Roadster	2,895
3260	4-p	Sport Tour.	3,095
3385	7-p	Phaeton	2,895
3365	4-p	Coupe Landau	3,820
3335	4-p	Coupe	3,695
3440	5-p	Sedan	3,895
3560	7-p	Sedan	3,995
3615	7-p	Enc. Drive Lim.	4,045
<b>REO "T-6"</b>			
3350	2-p	Sp. Roadster	1,765
3450	4-p	Coupe	1,975
3400	5-p	Sedan 4 d.	1,595
3545	5-p	Sedan	2,085
3705	5-p	Brougham 4 d.	2,235
<b>REVERE "25"</b>			
3900	2-p	Roadster	\$2,750
3975	4-p	Speedster	2,750
4050	5-p	Touring	2,750
4300	5-p	Sedan	3,800
		"M"	
3700	2-p	Roadster	3,200

SHIP.	WT. PASS.	BODY STYLE	PRICE
3800	4-p	Sportster	3,200
3970	5-p	Touring	3,200
4400	5-p	Sedan	4,000
RICKENBACKER			
D			
2864	4-p	Sp. Roadster	\$1,595
2787	5-p	Sp. Touring	1,395
3040	4-p	Coupe	1,895
3027	5-p	Coach Brough.	1,595
3143	5-p	Sedan	1,995
"A"			
3326	4-p	Sport Phaeton	2,195
3440	4-p	Coupe	2,695
3585	5-p	Sedan	2,795
3485	5-p	Coach Brough.	2,395
ROAMER "6-54-E"			
(118 in. W. B.)			
3100	2-p	Roadster	\$2,685
3100	4-p	Tourer	2,485
3300	4-p	Sp. Touring	2,750
.....	7-p	Touring	2,685
.....	3-p	Cabriolet	3,285
(138 in. W. B.)			
4100	5-p	Spec. Sedan	4,250
4200	7-p	Suburban Sedan	3,950
"4-75-E"			
3650	4-p	Sport	3,650
"4-85-E"			
3200	2-p	Spec. Speedster	3,785
ROLLIN			
2360	5-p	Touring	\$1,155
2405	3-p	Coupe	1,325
2595	5-p	Brougham	1,325
2575	5-p	Sedan	1,455
ROLLS-ROYCE			
.....	Chassis		††
††Manufacturers do not quote list prices.			
STANLEY "252"			
3400	5-p	Phaeton	\$2,500
3800	5-p	Sedan	3,300
STAR			
1725	2-p	Roadster	\$540
1830	5-p	Touring	540
1915	2-p	Coupe	715
.....	5-p	Coach	750
2155	5-p	Sedan	820
STEARNS-KNIGHT			
#	"B" (4)		
.....	4-p	Coupe Roadster	\$1,795
3775	5-p	Touring	1,595
4250	5-p	Sedan	2,095
3750	4-p	Coupe Brougham	1,895
.....	5-p	Brougham	2,095
"S" (6)			
.....	2-p	Roadster	2,495
3775	5-p	Touring	2,395
3850	7-p	Touring	2,495
4025	2-p	Coupe	3,395
4275	4-p	Sp. Coupe	3,150
3950	5-p	Sedan	2,945
4275	7-p	Sp. Brougham	3,395
"C" (6)			
3525	4-p	Touring	1,875
3540	5-p	Touring	1,875
3550	2-p	Sport Coupe	2,185
3650	5-p	Coupe Brougham	2,285
3700	5-p	Sedan	2,475
3700	5-p	Brougham	2,475
.....	5-p	Brough. Sedan	2,480
STERLING-KNIGHT			
3200	4-p	Sp. Touring	\$2,250
3285	5-p	Phaeton	2,150
3300	7-p	Touring	2,400
3200	2-p	Coupe Roadster	3,100
3450	5-p	Sedan	2,800
3550	7-p	Sedan	3,050
3450	4-p	Sp. Brougham	2,750
3300	4-p	Coupe	3,200
STEVENS-DURYEA			
4200	2-p	Roadster	\$8,150
4400	7-p	Touring	7,500
4250	4-p	Sp. Touring	7,750
4600	4-p	Coupe	9,000
4600	4-p	Sedan	10,000
4800	6-p	Sedan	9,675
4800	6-p	Town Brougham	10,175
4800	6-p	Vestibule Limou.	9,675
4800	7-p	Vestibule Limou.	10,175
4800	7-p	Limousine	10,175
4800	7-p	Cabriolet	10,175
STUDEBAKER			
Standard Six			
2760	3-p	Du. Roadster	\$1,125
2870	5-p	Du. Phaeton	1,145
2945	3-p	C. Club. Coupe	1,345
3110	5-p	Coupe	1,445
2980	5-p	Coach	1,295
3175	5-p	Brougham	1,465
3260	5-p	Sedan	1,545
3280	5-p	Berline	1,650

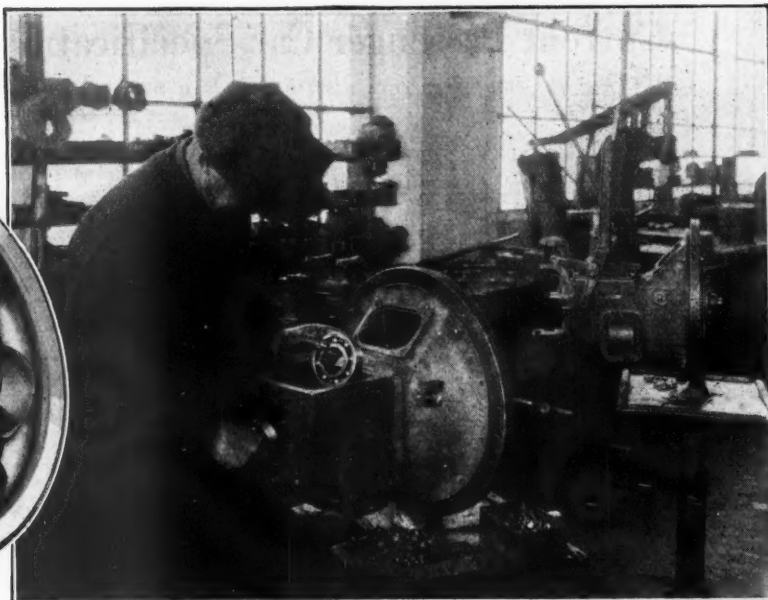
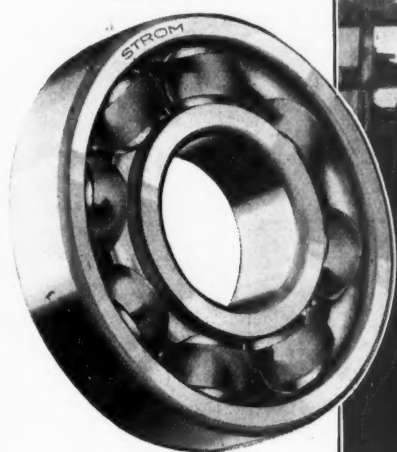


# Current Passenger Car Specifications

(This list comprises cars distributed on a national basis)

MAKE AND MODEL		Wheelbase (Ins.)	TIRES		Balloon Equipment	ENGINE										Electrical System		Clutch	Gear-set	Uni- versal Joints	REAR AXLE		BRAKES				Steering Gear	Rear Springs
			Standard Size (Ins.)			Make	Model	Number of Cylinders, Bore and Stroke (Ins.)	Rated Horsepower N.A.C.C.	Valve Arrangement	Piston Material	Number of Main Crankshaft Bearings	Oiling System	Carburetor Make	Ignition System Make	Generator and Starter Make	Type and Make				Make	Type and Make	Type and Make	Gear Ratio	Foot, Type and Location	Hand, Type and Location		
Anderson.....41	115	31x5.2	Yes	Cont	7U	6-3 1/2 x 4 1/4	23.44	L	C	4	PC	Zen	Wes	Wes	P-B&B	Dur	R-Uni	1/2 Sal	4.75	E-R	E-T	Mec*	Gem	S-58				
Anderson.....50	122	33x4.9	Yes	Cont	8R	6-3 1/2 x 4 1/4	27.34	L	C	4	PC	Zen	Rem	Rem	P-B&B	Mec	R-Uni	1/2 Sal	4.50	E-R	E-T	Mec*	Gem	S-58				
Apperson.....6	120	22x5.7	Yes	Own	6	6-3 1/2 x 4 1/4	24.40	I	C	4	FP	Str	Rem	Rem	P-Roc	Mec	M-Stl	1/2 Col	5.10	E-R	I-R	Mec*	Lav	J-48				
Apperson.....V-8	130	33x6.7	Yes	Own	8	8-3 1/2 x 5	33.80	L	C	5	PC	Sch	Rem	Bij	D-Own	P-Own	M-Thi	1/2 Own	4.66	E-R	I-R	Mec*	Own	J-43				
Apperson.....St-Away "8"	130	32x5.7	Yes	Own	St. "8"	8-3 1/2 x 4 1/2	31.25	L	C	5	PC	Sch	Rem	Rem	P-Own	Own	M-Sti	1/2 Own	4.25	E-R	I-R	Mec*	Ros	J-.....				
		32x6.2																4.63										
Auburn....."4"	108	29x4.4	Yes	Lyc	CF	4-3 1/2 x 5	21.03	L	A	5	PC	.....	Rem	Rem	P-B&B	W-G	M-Uni	1/2 Col	4.63	E-R	E-T	Mec*	Jac	S-57				
Auburn.....6-43	114	31x4	Yes	Cont	7U	6-3 1/2 x 4 1/4	23.44	L	C	4	PC	Str	Rem	Rem	P-B&B	W-G	M-Uni	1/2 Col	.....	E-R	E-T	Mec*	Ros	S-57				
Auburn.....8-63	129	32x6.2	Yes	Lyc	2-H	8-3 1/2 x 4 1/2	31.25	L	C	5	PC	Sch	Rem	Rem	P-Lon	W-G	M-Uni	1/2 Col	.....	E-R	E-T	Mec*	Ros	S-57				
Barley.....6-50	118	33x4	No	Cont	7U	6-3 1/2 x 4 1/4	23.44	L	C	4	PC	Str	Del	Del	P-B&B	Ful	R-M&E	3/4 Col	4.90	E-R	I-R	None	Jac	S-56				
Buick....."Standard"	114 1/2	31x4.9	Yes	Own	Sta	6-3 1/2 x 4 1/2	21.60	I	C	4	PC	Mar	Del	Del	D-Own	Own	M-Own	1/2 Own	4.90	E-F	I-F	Hyd	Jac	V-48				
Buick....."Master"	120	32x5.7	Yes	Own	Mast	6-3 1/2 x 4 3/4	27.34	I	C	4	PC	Mar	Del	Del	D-Own	Own	M-Own	1/2 Own	4.73	E-F	I-R	Mec	Jac	V-47 1/2				
	128																	4.54										
Cadillac.....V-63	132	33x5	Yes*	Own	63	8-3 1/2 x 5 1/2	31.25	L	C	3	PC	Own	Del	Del	D-Own	Own	M-Spi	F-Own	4.50	B-F	I-R	Mec	Own	N-54				
	138																											
Case.....X	122	32x4 1/2	Yes*	Cont	8R	6-3 1/2 x 4 1/2	27.34	L	C	4	PC	Ray	Del	Del	D-Own	Own	R-Sne	1/2 Col	4.90	E-R	I-R	Hyd	Jac	S-59 1/2				
Case.....JIC	122	32x6.2	Yes	Cont	8R	6-3 1/2 x 5	33.75	L	C	4	PC	Sch	Del	Del	D-Own	Own	R-Sne	1/2 Col	4.90	E-F	E-T	Hyd	Lav	S-55				
Case.....Y	122	33x5	Yes*	Cont	6T	6-3 1/2 x 5 1/4	31.54	L	C	4	PC	Sch	Del	Del	D-Own	Own	R-Sne	3/4 Col	4.45	E-R	I-R	Hyd	Jac	S-57				
Chandler.....SS	132	33x6.0	Yes	Own	SS	6-3 1/2 x 5	29.40	L	C	4	PC	Sch	Bos	Bos	P-B&B	Own	R-Own	3/4 Own	4.45	E-F	E-T	Mec	Own	S-58 1/2				
Chevrolet....."K"	103	30x3 1/2	Yes*	Own	"K"	4-3 1/2 x 4	21.76	I	C	3	PS	Zen	Rem	Rem	P-Own	Own	M-Own	1/2 Own	3.82	E-R	I-R	None	Own	S-54				
Chrysler.....Six	112 1/2	30x5.7	Yes	Own	Six	6-3 1/2 x 4 1/4	21.60	L	A	7	PC	Bal	Rem	Rem	D-Own	Own	M-Uni	1/2 Own	4.60	E-F	E-T	Hyd	Jac	S-51 1/2				
	118 1/2																											
Cleveland....."31"	108 1/2	30x4.7	Yes	Own	"31"	6-2 7/8 x 4 1/4	19.84	L	C	3	PC	Joh	Bos	Bos	P-B&B	Own	R-Pic	1/2 Own	4.90	E-R	E-T	Mec*	CAS	S-50				
Cleveland.....43	115	31x5.2	Yes	Own	43	6-3 1/2 x 4 1/4	23.44	L	C	3	PC	Sch	Bos	Bos	P-B&B	Own	R-Sne	1/2 Own	4.90	E-R	E-T	Mec*	CAS	S-53				
Cole.....Master	127	34x7.3	Yes	Nor	311	8-3 1/2 x 4 1/2	39.20	L	A	3	PC	Joh	Del	Del	D-Nor	Nor	M-Spi	F-Col	4.70	E-R	I-R	None	Gem	S-57				
Cunningham.....V-6	132	33x5	Yes*	Own	V-6	8-3 1/2 x 5	45.00	L	C	3	FP	Str	Del	Del	D-Own	Own	R-Sne	F-Tim	4.23	E-R	I-R	None	Gem	J-62				
	142																											
Dagmar.....6-60	118	32x4 1/2	Yes*	Cont	8R	6-3 1/2 x 4 1/2	27.34	L	C	4	PC	Sch	Del	Del	P-B&B	War	M-Spi	1/2 Tim	5.10	E-R	E-T	None	Gem	S-52				
Dagmar.....6-70	138	33x5	Yes*	Cont	6J	6-3 1/2 x 5	33.75	L	C	4	PC	Sch	Del	Del	D-B-L	B-L	M-Spi	1/2 Tim	4.90	E-R	E-T	None	Gem	S-52				
Daniels.....24-38	138	33x5	Yes*	Own	24-38	8-3 1/2 x 5 1/4	39.20	L	C	3	PC	Zen	Del	Del	P-Own	Own	M-Spi	F-Tim	4.23	E-R	I-R	None	Ros	S-52				
Davis.....90	115	31x5.2	Yes	Cont	7U	6-3 1/2 x 4 1/4	23.44	L	C	4	PC	Str	Del	Del	P-B&B	W-G	M-Pet	1/2 Tim	5.10	E-F	I-R	Hyd	Ros	S-52				
Davis.....91	118	30x5.7	Yes	Cont	8R	6-3 1/2 x 4 1/2	27.34	L	C	4	PC	Str	Del	Del	P-B&B	W-G	M-Pet	1/2 Tim	5.10	E-F	I-R	Hyd	Ros	S-52				
Dodge Brothers.....	116	30x5.7	Yes	Own	.....	4-3 1/2 x 4 1/2	24.03	L	A	3	Sp	Ste	N.E.	N.E.	D-Own	Own	M-Own	1/2 Own	4.16	E-R	I-R	None	Own	S-55				
Dorris.....	132	32x6.2	Yes	Own	6-80	6-4 1/2 x 5	38.40	I	C	7	FP	Str	Bos	Bos	D-Own	War	R-Spi	1/2 Tim	4.23	E-R	I-R	None	Own	S-60				
Duesenberg Straight "8"	134	33x5	Yes	Own	"A"	8-2 1/2 x 5	26.45	I	A	3	PC	Str	Bos	Del	P-Own	Own	R-Clu	1/2 Tim	4.90	I-F	E-T	Hyd	Ros	S-59				
	141																											
Dupont.....D	124	32x6.2	Yes	Wis	Y	6-3 1/2 x 5	27.34	I	A	3	PC	Sch	Bos	Bos	D-Lon	Cpl	M-Uni	1/2 Eat	4.70	E-F	I-T	Hyd	Jac	S-59				
Durant.....A-22	109	31x4	Yes*	Cont	Spec	4-3 1/2 x 4 1/4	24.03	I	A	3	PC	Til	A-L	A-L	P-Own	War	M-Spi	3/4 Own	4.33	E-R	I-R	Mec*	Own	S-50 1/2				
Eicar.....4-41	112	31x4	Yes*	Lyc	CF	4-3 1/2 x 5	21.03	L	A	5	PC	Zen	A-L	A-L	P-B&B	W-G	M-Mec	1/2 Sal	4.70	E-R	E-T	Mec*	Ros	S-51				
Eicar.....6-51	113	31x4	Yes*	Cont	7U	6-3 1/2 x 4 1/4	23.44	L	C	4	PC	Str	A-L	A-L	P-B&B	W-G	M-Mec	1/2 Sal	4.70	E-R	E-T	Mec*	Ros	E-51				
Eicar.....8-80	127	32x6.2	Yes	Lyc	H	8-3 1/2 x 4 1/2	31.25	L	C	5	PC	Sch	Del	Del	P-B&B	W-G	M-Spi	1/2 Sal	4.71	E-F	E-T	Hyd	Ros	S-58				
Easex.....6	110 1/2	30x4.9	Yes	Own	6	6-2 1/2 x 4 1/4	17.32	L	A	3	Sp	Ste	Bos	Bos	D-Own	Own	M-Spi	1/2 Own	5.60	E-R	I-R	None	Own	S-54 1/2				
Flint.....40	115	30x5.2	Yes	Cont	6-W	6-3 1/2 x 4 1/4	23.44	L	C	4	PC	Car	A-L	A-L	P-Own	War	M-Spi	3/4 Ad	4.77	E-F	E-T	Hyd	Ros	S-50				
Flint.....55	120	32x6.2	Yes	Cont	55	6-3 1/2 x 5	27.34	L	C	7	PC	Str	DeJ	DeJ	P-Own	War	M-Spi	1/2 Ad	4.77	E-F	E-T	Hyd	Own	S-55				
Ford.....T	100	30x3 1/2	Yes*	Own	T	4-3 1/2 x 4	22.50	L	C	3	Sp	Own	Own	Own	D-Own	Own	M-Own	1/2 Own	3.63	E-T	I-R	None	Own	O-43 1/2				
Franklin.....11 A	119	31x5.2	Yes	Own	11-A	6-3 1/2 x 4	25.35	I	A	7	PC	Str	Dyn	Dyn	P-B-L	Own	M-Spi	1/2 Own	4.73	E-T	E-R	None	Own	E-38				
Gardner.....Series 5	112	32x4	Yes*	Lyc	CE	4-3 1/2 x 5	21.73	L	C	5	PC	Zen	Wes	Wes	P-B&B	Mec	M-Pet	3/4 Fli	4.80	I-R	I-R	None	Ros	S-51 1/4				
Gardner....."6-A"	117	30x5.2	Yes	Lyc	S	6-3 1/2 x 4 1/4	23.44	L	I	4	PC	Sch	Rem	Rem	P-B&B	Mec	M-Pet	1/2 Col	4.63	E-F	E-T	Mec	Gem	S-57				
Gardner....."8-A"	125	30x5.7	Yes	Lyc	2-H	8-3 1/2 x 4 1/2	31.25	L	C	5	PC	Sch	Rem	Rem	P-B&B	Mec	M-Mec	1/2 Col	4.70	I-F	E-T	Mec	Gem	S-57				
Gray.....O	104	30x3 1/2	Yes*	Own	R	4-3 1/2 x 4	21.03	L	C	3	Sp																	

Super-Strom



# The New Super-Strom

*Adopted by leaders in automotive industry*



Double-acting thrust bearing, flat seats (grooved races) 2100-F Series



Single-acting thrust bearing, flat seats (grooved races) 1100-F Series



Single-acting, self-aligning thrust bearing, leveling washers. 1100-U Series



Double-acting, self-aligning thrust bearing, leveling washers 2100-U Series

**T**RANSMISSION manufacturers have adopted the Super-Strom Ball Bearing because of its dependability and smooth, quiet-running qualities.

In many automotive installations it is being specified because it is the deep-groove type they have been looking for. It has the required accuracy, capacity and longevity.

The Super-Strom Ball Bearing is a stock bearing with dimensional accuracy and concentricity comparing favorably with bearings made to special specifications for precision. It has greater load-carrying ca-

capacity than any other deep-groove bearing on the market—by the use of more or larger balls, according to size of bearing. It has exceptional durability. The retainers are sturdy—accurately pressed—rigidly riveted. The special analysis ball-bearing steel is heat treated by improved methods.

Super-Strom Ball Bearings are now available in quantity production—backed by Strom service. Strom engineers at your command, on any problem, any time.

You need to know all the facts about this bearing. *Send for Super-Strom booklet today.*



Double-row, deep-groove type, radial bearing



Angular contact bearing, combination radial and thrust



Double-row, maximum type, radial bearing



Single-row, maximum type, radial bearing

## Strom

**BALL BEARINGS**

STROM BALL BEARING MFG. CO.  
Formerly U. S. Ball Bearing Mfg. Co.  
4551 Palmer Street, Chicago, Ill.



## Current Passenger Car Specifications

(This list comprises cars distributed on a national basis)

MAKE AND MODEL	Wheelbase (Ins.)	TIRES		ENGINE								Electrical System		Clutch	Gear-set	Universal Joints	REAR AXLE		BRAKES				Steering Gear	Rear Springs	
		Standard Size (Ins.)	Ballon Equipment	Make	Model	Number of Cylinders, Bore and Stroke (Ins.)	Rated Horsepower, N.A.C.C.	Valve Arrangement	Piston Material	Number of Main Crankshaft Bearings	Oiling System	Carburetor Make	Ignition System Make				Generator and Starter Make	Type and Make	Make	Type and Make	Type and Make	Gear Ratio†			Foot, Type and Location
Paig-Peerless.....70	131	33x6.7	Yes	Cont	10A	6-3 1/2 x 5	33.75	L	C	4	PC	Joh	A-K	Rem	D-Lon	W-G	M-Mec	1/2 Sal	4.90	E-R	E-T	Hyd*	Gem	8-61 1/2	
	126	33x6.0	Yes	Own	70	6-3 1/2 x 5	29.40	L	C	7	PC	Joh	Del	Del	D-Own	Own	M-Spi	3/4 Tim	4.63	E-F	I-R	Hyd	Gem	8-54	
Peerless, Equipoised "8"	128	33x6.6	Yes	Own	67	8-3 1/4 x 5	33.80	L	C	3	PC	Str	Del	Del	D-Own	Own	M-Spi	3/4 Tim	4.90	E-R	I-R	Hyd	Gem	8-60	
Pierce-Arrow.....33	138	33x5	No	Own	33	6-4 x 5 1/2	38.40	T	C	7	FP	Own	Del	Del	D-Own	Own	M-Spi	1/2 Tim	4.29	E-R	I-R	Mec*	Gem	8-64 1/2	
Pierce-Arrow....."80"	130	32x5.7	Yes	Own	"80"	6-3 1/2 x 5	29.40	L	C	7	FP	Own	Del	Del	P-B&B	B-L	M-Spi	1/2 Tim	4.45	I-F	I-R	Mec	Gem	8-50 1/2	
Reo.....T6	120	32x6.2	Yes	Own	T6	6-3 1/2 x 5	24.34	G	A	4	PS	Sch	NE	NE	D-Own	Own	(M-Own)	1/2 Tim	4.70	E-R	I-R	None	Own	8-50 1/2	
	120	32x4 1/2	Yes*	Mons.	"M"	4-4 3/8 x 6	30.63	H	A	2	PC	Str	Bos	Wes	D-B-L	B-L	M-Spi	1/2 Tim	3.44	I-R	E-R	.....	Gem	8-50 1/2	
Revere....."M"	25	32x6.2	Yes	Cont	6-J	6-3 1/2 x 5	33.75	H	C	4	PC	Sch	Bos	Wes	D-Ful	Ful	M-Spi	3/4 Col	3.75	I-F	E-T	Mec	Gem	8-50 1/2	
Rickenbacker.....D	117	31x5.2	Yes*	Own	D	6-3 1/4 x 4 3/4	25.35	L	C	7	PC	Str	Bos	Bos	D-Own	W-G	M-Mec	1/2 Col	4.63	I-F	E-T	Mec	Gem	8-57	
Rickenbacker.....A	121 1/2	32x5.7	Yes	Own	A	8-3 x 4 3/4	28.60	L	C	9	PC	Zen	Del	Bos	D-Own	W-G	M-Mec	1/2 Col	5.10	I-F	E-T	Mec	Gem	8-59	
Roamer.....6-54-E	118	32x4 1/2	No	Cont	12XD	6-3 1/2 x 5 1/4	29.40	L	A	3	PS	Str	Spl	Wes	P-B&B	Ful	R-M&E	1/2 Tim	4.45	E-R	I-R	Mec*	Jac	V-55 1/2	
	128	32x4 1/2	No	Dues	G1	4-4 1/2 x 6	28.90	H	A	3	FP	Str	Bos	Wes	D-B-L	B-L	R-M&E	3/4 Tim	4.63	E-R	I-R	Mec*	Jac	V-55 1/2	
Roamer.....4-75-E	122	31x5.2	Yes	Own	G	4-3 1/4 x 4 1/2	16.90	L	A	4	PC	Til	Con	Dyn	P-B&B	Mun	R-Own	1/2 Sal	5.10	I-F	I-F	Mec	Ros	O-46	
Rollin.....G-2	112	31x5.2	Yes	Own	40	6-4 1/2 x 4 3/4	48.60	L	A	7	FP	Own	Bos	Wes	K-Own	Own	M-Own	F Own	3.72	I-R	I-R	None	Own	V-54 1/2	
Rolls-Royce.....40-50	143 1/2	33x5	No	Own																					
Stanley.....252	122	31x4.9	Yes	Own	252	2-4 x 5	20.00	X	C	2	Sp	Non	Non	Bos	Non	Non	R-The	1/2 Tim	4.50	E-F	I-R	Hyd	Ros	S-58	
Star.....4	102	30x3 1/2	Yes*	Cont	Spec	4-3 1/2 x 4 1/4	15.63	L	C	3	PK	Til	A-L	A-L	P-Own	Own	M-Spi	1/2 Tim	4.87	E-R	I-R	Mec*	Own	S-49 1/2	
Stearns Knight.....C	121	33x6	Yes	Own	Kui	6-3 1/4 x 5	25.35	X	A	4	PC	Joh	DeJ	DeJ	D-M&E	Own	R-Cl	1/2 Tim	5.30	E-R	I-R	Hyd*	Own	V-50	
Stearns Knight.....B	119	33x4 1/2	Yes*	Own	Kui	4-3 1/2 x 5 1/2	22.50	X	A	3	PC	Sch	A-K	A-L	D-Own	Own	R-Cl	1/2 Tim	4.50	E-R	I-R	Hyd*	Ros	V-50	
Stearns Knight.....S	130	33x6.6	Yes	Own	Kui	6-3 1/2 x 5	29.40	X	A	4	PC	Joh	DeJ	DeJ	D-M&E	Own	R-Cl	1/2 Tim	4.90	E-R	I-R	Hyd	Ros	V-50	
Sterling Knight.....G	125	32x4 1/2	Yes*	Own	Kui	6-3 1/4 x 4 3/4	25.35	X	C	7	FP	Str	Wes	Wes	D-B-L	Ful	R-Cl	1/2 Tim	5.10	E-R	I-R	Hyd*	Ros	S-58	
Stevens-Duryea.....G	133	33x5	Yes*	Own	G	6-4 1/2 x 5 1/2	47.25	L	C	4	PS	Str	Bos	Bos	D-B-L	B-L	M-Spi	F Tim	3.76	E-R	I-R	None	Ros	J-50 1/2	
Studebaker.....Sta. Six	118	31x5.2	Yes	Own	ER	6-3 1/2 x 4 1/2	27.34	L	C	4	PC	Str	(Wag)	(Wag)	P-Own	Own	R-The	1/2 Tim	4.18	E-R	E-T	Hyd*	Own	S-50 1/2	
Studebaker.....Spec. Six	120	32x6.2	Yes	Own	EQ	6-3 1/2 x 5	29.40	L	C	4	PC	Str	(Wag)	(Wag)	P-Own	Own	M-Spi	1/2 Tim	4.36	E-R	E-T	Hyd*	Own	S-56	
Studebaker.....Big Six	127	31x7.3	Yes	Own	EP	6-3 1/2 x 5	36.04	L	C	4	PC	Bal	(Wag)	(Wag)	P-Own	Own	M-Spi	1/2 Tim	3.69	E-R	E-T	Hyd*	Own	S-56	
Stutz.....693-4	120	32x6.2	Yes	Own	691	6-3 1/2 x 5	29.40	I	B	3	PC	Str	Item	Item	P-B&B	W-G	M-Mec	3/4 Tim	4.63	E-F	E-T	Hyd	Gem	8-2	
Stutz.....695	130	32x6.7	Yes	Own	691	6-3 1/2 x 5	29.40	I	B	3	PC	Str	Item	Item	P-B&B	W-G	M-Mec	3/4 Tim	4.90	E-R	I-R	Hyd	Gem	8-52	
Templar.....122	33x4	No	Own			6-3 1/2 x 5	27.31	I	C	4	PS	Til	Dyn	Dyn	P-M&E	W-G	R-Sne	1/4 Sal	5.10	I-F	E-T	Mec	Ros	S-54	
Velie.....60	118	31x5.2	Yes	Own	50	6-3 1/2 x 4 1/4	24.38	I	C	4	FP	Til	Wes	Wes	P-B&B	Mun	M-Uni	1/2 Sal	5.10	E-F	E-T	Hyd	Ros	S-55	
Westcott.....44	120	32x6.2	Yes	Cont	8R	6-3 1/2 x 4 1/2	27.34	L	C	4	PC	Str	Del	Del	P-B&B	W-G	M-Cle	1/2 Col	4.90	E-R	E-T	Hyd*	Gem	S-57 1/2	
Westcott.....60	118	32x6.2	Yes	Own	8R	6-3 1/2 x 4 1/2	27.34	L	C	4	PC	Str	Del	Del	P-M&E	W-G	M-Cle	1/2 Col	4.63	E-R	E-T	Hyd*	Gem	S-56	
Wills Ste. Claire. ABC68	121	32x6.2	Yes	Own	ABC	8-3 1/4 x 4	33.80	I	C	3	FP	(Zen)	Del	Del	P-Own	Own	M-Spi	1/2 Col	4.90	(E-R)	(E-T)	(None)	Own	(S-54) 1/2	
	127	33x6.0	Yes	Own	"W-6"	6-3 1/4 x 5 1/2	25.35	I	C	7	PC	Sch	Del	Del	P-Own	Own	M-Spi	3/4-Eat	1.90	E-F	E-T	Hyd	Own	S-58	
Wills Ste. Claire. "W-6"	118	33x1.9	Yes	Own	65	4-3 1/2 x 4 1/2	21.03	X	C	3	PS	Til	A-L	A-L	D-Own	Own	R-Own	1/2 Tim	4.44	E-R	I-R	None	Own	S-55	
Willys Knight.....65 & 67	124	33x5.7	Yes	Own														15.12							
Willys Knight....."66"	126	32x6.2	Yes	Own	"66"	6-3 1/4 x 4 3/4	25.35	X	A	7	PC	Til	A-L	A-L	D-Own	Own	M-Mec	1/2 Tim	5.11	B-F	E-R	Mec	Own	S-57 1/2	
TAXICABS																									
Checker.....E	117	33x4 1/2	No	Buda	WTU	4-3 1/2 x 5 1/2	22.50	L	C	3	PC	Zen	Bos	Bos	D-Ful	Ful	Blo	3/4 Col	5.12	E-R	I-R	None	Gem	S-57 1/2	
Driggs.....108 1/2	30x3 1/2	No	Own			4-2 3/8 x 4 1/2	11.03	L	C	3	PS	Zen	Bos	Bos	D-Ful	Ful	Spi	3/4 Own	4.74	E-R	I-R	None	Own	8-	
H.C.S.....110	29x4 1/2	No	Wauk	Z		4-3 1/4 x 4 1/2	16.90	L	I	3	FP	Zen	Bos	Bos	P-B&B	.....	M-Mec	3/4 Own	.....	I-R	E-T	.....	Ros	8-	
Kelsey.....E	112	32x4	No	Lyc	CH	4-x 3 1/2	19.60	L	A	5	PC	Zen	Bos	Bos	P-B&B	W-M	M-Spi	3/4 Sal	5.10	E-R	I-R	None	Lav	S-55	
Luxor....."Lux"	118	33x4 1/2	No	Buda	WTU	4-3 1/2 x 5 1/2	22.50	.....	.....	.....	.....	Zen	Bos	Bos	D-Ful	Ful	M-Spi	1/2 Col	.....	E-R	E-T	None	Gem	S-50 1/2	
Pennant.....115	33x4 1/2	No	Buda	WTU		4-3 1/2 x 5 1/2	22.50	L	B	3	PC	Zen	Bos	Bos	D-Ful	Ful	Blo	3/4 Col	4.87	E-R	I-R	None	Jon	S-57	
Premier.....4-B	112	30x5	Yes*	Buda	WTU	4-3 1/2 x 5 1/2	22.50	L	B	3	PC	Zen	Bos	Bos	P-B&B	Mun	Pic	3/4 Col	4.70	E-F	E-T	Mec	Ros	S-57 1/2	
Rauch & Lang.....T	112	32x4	No	Buda	WTU		22.50	L	C	3	Sp	Zen	Bos	Dyn†	D-Dtl	Det	Spi	1/2 Sta	5.10	E-R	E-T	None	Gem	S-50 1/2	
Rauch & Lang**	102	33x4 1/2	No	Own		Electric						Sch	N-E	N-E	D-Own	None	Own	Own	8.60			None	Own	8-	
Reo.....113	32x4 1/2	Yes*	Own	T-6		6-3 1/2 x 5	24.30	G	A	4	PS	Sch						1/2 Own	4.70	E-R	I-R	None	Own	S-54	
Traveler.....108 1/2	32x4	No	Buda	WTU		4-3 1/2 x 5 1/2	22.50	L	B	3	PC	Zen	Eis	Eis	D-Dtl	W-M	Spi	Col	.....	E-R	I-R	None	Gem	8-	
Willys Knight.....A.B.C.	118	32x4 1/2	Yes*	Own	64	4-3 1/2 x 4 1/2	21.03	X	C	3	PS	Til	A-L	A-L	D-Own	Own	Own	3/4 Own	5.12	E-R	I-R	None	Own	S-55	
Yellow.....O-4	100	32x4 1/2	No	Cont	V7	4-3 1/2 x 5	22.50	L	C	3	Sp	Zen	Bos	N-E†	D-B-L	B-L	Spi	3/4 Tim	4.90	E-R	E-T	None	Gem	50 1/2	
Yellow.....A-2	100	29x4 1/2	Yes	Cont	V7	4-3 1/2 x 5	19.60	L	C	3	Sp	Zen	Bos	N-E†	D-B-L	B-L	Spi	3/4 Tim	4.89	E-R	E-T	None	Gem	50 1/2	

## TAXICABS

Checker.....	E	117	33x4½	No	Buda	WTU	4-3½x5½	22.50	L	C	3	PC	Zen	Bos	Bos	D-Ful	Ful	Blo	¾ Col	5.12	E-R	I-R	None	Gem	S-57½	
Driggs.....		108½	30x3½	No	Own		4-2½x4½	11.03	L	C		PS	Zen	Bos	Bos	D-Ful	Ful	Spi	¾ Own	4.74	E-R	I-R	None	Own	S-	
H.C.S.....		110	29x4½	No	Wauk	Z	4-3¼x4½	16.90	L	I	3	FP	Zen	Bos	Bos	P-B&B		M-Mec	¾ Own			I-R	E-T		Ros	S-
Kelsey.....	E	112	32x4	No	Lyc	CH	4-x3½	19.60	L	A	5	PC	Zen	Bos	Bos	P-B&B	W-M	M-Spi	¾ Sal	5.10	E-R	I-R	None	Lav	S-55	
Luxor.....	"Lux"	118	33x4½	No	Buda	WTU	4-3½x5½	22.50					Zen	Bos	Bos	D-Ful	Ful	M-Spi	½ Col			E-R	E-T	None	Gem	S-50½
Pennant.....		115	33x4½	No	Buda	WTU	4-3½x5½	22.50	L	B	3	PC	Zen	Bos	Bos	D-Ful	Ful	Blo	¾ Col	4.87	E-R	I-R	None	Jon	S-57	
Premier.....	A-B	112	30x5	Yes*	Buda	WTU	4-3½x5½	22.50	L	B	3	PC	Zen	Bos	Bos	P-B&B	Mun	Pic	¾ Col	4.70	E-F	E-T	Mec	Ros	S-57½	
Rauch & Lang.....	T	112	32x4	No	Buda	WTU	4-3½x5½	22.50	L	C	3	Sp	Zen	Bos	Dyn†	D-Dtl	Det	Spi	½ Sta	5.10	E-R	E-T	None	Gem	S-50½	
Rauch & Lang**.....		102	33x4½	No	Own	Electric									None	None	Own	Own		8.60			None	None	S-	
Reo.....		113	32x4½	Yes*	Own	T-6	6-3½x5	24.30	G	A	4	PS	Sch	N-E	N-E	D-Own	Own	Own	½ Own	4.70	E-R	I-R	None	Own	S-54	
Traveler.....		108½	32x4	No	Buda	WTU	4-3½x5½	22.50	L	B	3	PC	Zen	Eis	Eis	D-Dtl	W-M	Spi	Col			E-R	I-R	None	Gem	S-
Willys Knight.....	A.B.C.	118	32x4½	Yes*	Own	64	4-3½x4½	21.03	X	C	3	PS	Til	A-L	A-L	D-Own	Own	Own	¾ Own	5.12	E-R	I-R	None	Own	S-55	
Yellow.....	O-4	109	32x4½	No	Cont	V7	4-3½x5	22.50	L	C	3	Sp	Zen	Bos	N-E†	D-B-L	B-L	Spi	¾ Tim	4.90	E-R	E-T	None	Gem	50½	
Yellow.....	A-2	109	29x4½	Yes	Cont	V7	4-3½x5	19.60	L	C	3	Sp	Zen	Bos	N-E†	D-B-L	B-L	Spi	¾ Tim	4.89	E-R	E-T	None	Gem	56½	

## ABBREVIATIONS—

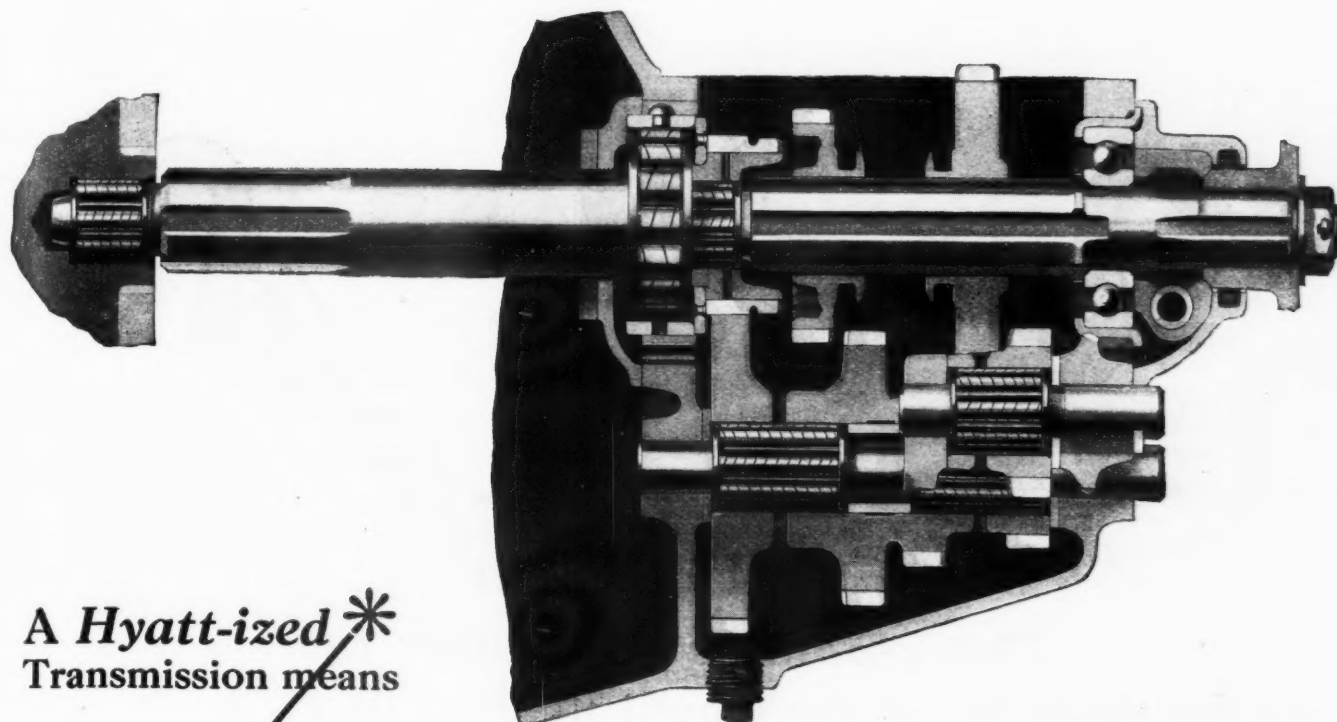
\*—Electric  
 †Generator only  
 \*—At extra cost  
 ‡—On Phaeton models  
 A—Aluminum  
 Anst—Ansted  
 Ad—Adams  
 A-K—Atwater-Kent  
 A-L—Auto-Lite  
 B—Semi Steel  
 Bal—Ball & Ball  
 B & B—Borg & Beck  
 B-F—Both Internal and External Four Wheels  
 Bij—Bijur  
 B-L—Brown-Lipe  
 Bio—Blood  
 Bos—Bosch  
 C—Cast Iron  
 Car—Carter  
 CH—Climax  
 Col—Columbia  
 Con—Connecticut  
 Cont—Continental  
 Cpl—Campbell  
 D—Multiple Disc

Del—Delco  
 Det—Detroit  
 De J—De Jon  
 Dit—Ditwiler  
 Doo—Dooley  
 Dtl—Detlaff  
 Dues—Duesenberg  
 Dur—Durst  
 Dyn—Dyneto  
 E—Full Elliptic  
 E-F—External Four Wheels  
 E-R—External Rear Wheels  
 E-T—External Transmission  
 Ent—Eaton  
 F—Full Floating  
 Fall—Falls  
 Fil—Flint  
 FP—Full Pressure to all bearings including wrist pins  
 Ful—Fuller  
 1/2 F—Semi-Floating  
 3/4 F—Three-Quarter Floating  
 G—Head and Side  
 G-D—Gray & Davis  
 Gem—Gemmer  
 G-L—Grant-Lees  
 Goo—Goodrich

H—Horizontal  
 Har—Hart  
 Hol—Holley  
 Hoo—Hoosier  
 H-Sp—Herschell-Spillman  
 Hyd—Hydraulic  
 I—In Head  
 I-F—Internal Four Wheels  
 I-R—Internal Rear Wheels  
 J—Three-Quarter Elliptic  
 Jac—Jacox  
 Jax—Jaxon  
 Joh—Johnson  
 Jon—Jones  
 K—Cone  
 Kin—Kingston  
 L—L Head  
 Lav—Lavine  
 Lon—Long  
 L-N—Leeco-Neville  
 Lyco—Lycoming  
 Mar—Marvel  
 M—Metal  
 M & E—Merchant & Evans  
 Mec—Mechanics  
 Mons—Monson  
 Mun—Muncie

N—Platform  
 Non—None  
 N. E.—North East  
 Nor—Northway  
 O—Special Type  
 Opt—Optional  
 P—Single Plate  
 PC—Pressure to all Crankshaft and connecting rod bearings  
 Pen—Penfield  
 Pet—Peters  
 Pic—Pick  
 PK—Pressure to Crankshaft, Connecting Rods, and Camshaft Bearings  
 PS—Splash and Pressure  
 Q—Quarter Elliptic  
 R—Fabric  
 Ray—Rayfield  
 Rem—Remy  
 Roc—Rockford  
 Ros—Ross  
 S—Semi Elliptic  
 Sal—Salisbury  
 Sch—Schebler  
 Sci—Scintilla  
 Sco—Scoe

Sne—Snead  
 Sp—Circulating Splash  
 Spe—Special  
 Spi—Spicer  
 Spl—Splittorf  
 S. E.—Standard Equipment  
 Ste—Stewart  
 Str—Sterling  
 Str—Stromberg  
 T—T Head  
 The—Thermoid  
 Thi—Thiener  
 Til—Tillotson  
 Tim—Timken  
 Uni—Universal  
 Uds—Universal Drive Shaft  
 V—Cantilever  
 W-G—Warner Gear  
 W-M—Willys-Morrow  
 Wag—Wagner  
 War—Warner  
 Weid—Weidley  
 Wes—Westinghouse  
 Wis—Wisconsin  
 X—Sleeve  
 Zen—Zenith



**A Hyatt-ized \*  
Transmission means**

## A Quality Transmission at Low Cost

Many manufacturers already realize the following distinct advantages from fully Hyatt-equipped transmissions in their vehicles:

1. Quietness, due to dampening of gear noises.
2. Maintenance of quietness, due to minimum wear.
3. Ease of assembly.
4. Uniform production output.
5. Elimination of extra locking and adjusting parts.
6. No threading of shafts.
7. Positive lubrication of all parts.
8. Permanence due to Hyatt durability.

In addition to lower production costs, a Hyatt-ized transmission will insure a quiet, positively lubricated unit that will improve the flexibility, smooth operation, and ease of handling of any motor car.

\* **Hyatt Bearings  
at these locations**

**Main Shaft  
Pocket Position  
Stationary  
Countershaft  
Reverse Idler  
Clutch Pilot**

**HYATT ROLLER BEARING COMPANY**

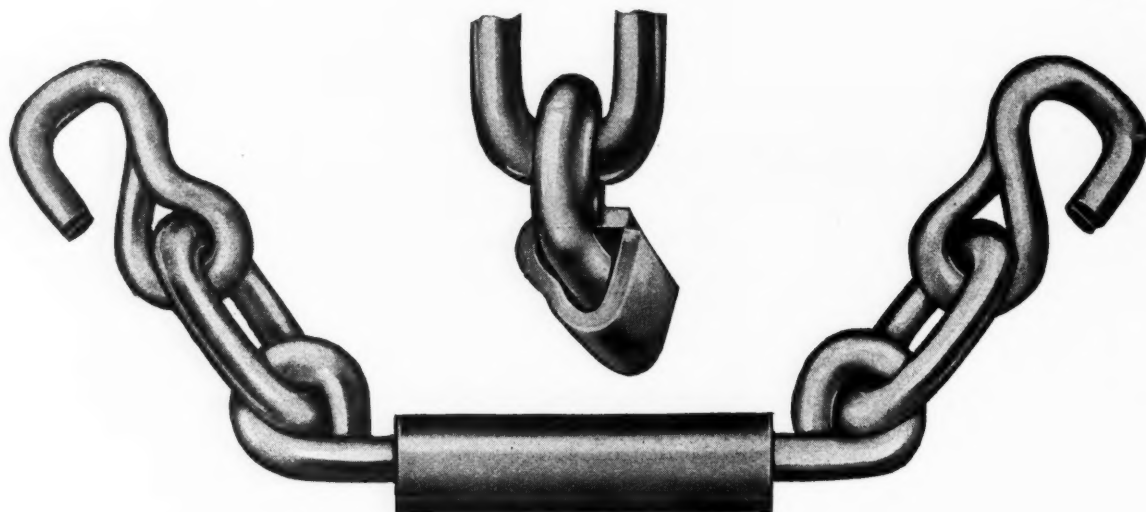
<b>NEWARK</b>	<b>DETROIT</b>	<b>CHICAGO</b>	<b>SAN FRANCISCO</b>
<b>WORCESTER</b>	<b>PHILADELPHIA</b>	<b>CHARLOTTE</b>	
<b>PITTSBURGH</b>	<b>CLEVELAND</b>	<b>MILWAUKEE</b>	

# HYATT

*Quiet*  
**Roller Bearings**



—and

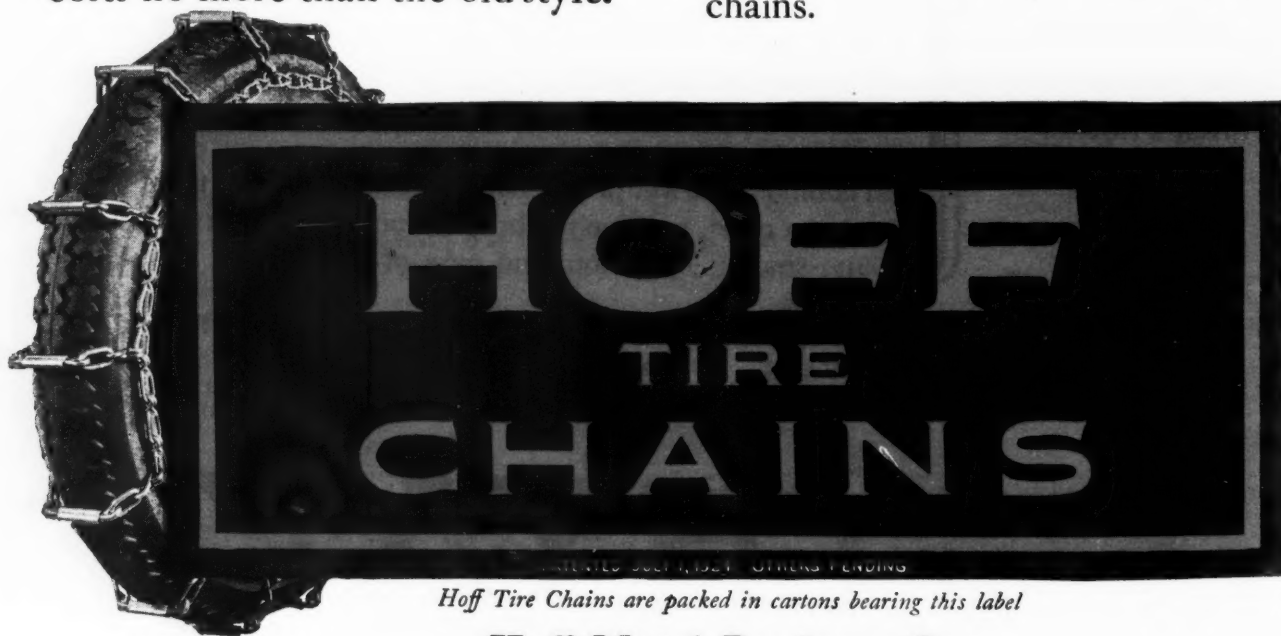


*This rotatable triangular tube*  
is the greatest improvement in tire chains since the  
beginning of the motor car industry

THIS new cross member—the Hoff Cross Member—has revolutionized tire chains. It is stronger, wears longer, gives greater traction, prevents side slips or skidding, does not injure tires nor pound fenders,—and it costs no more than the old style.

The triangular tubes take the wear and as they constantly change position, the wear is evenly distributed over the large area of all three sides.

Hoff Cross Members are also used for repairing old style chains.



*Hoff Tire Chains are packed in cartons bearing this label*

**Hoff Metal Products Co.**

Executive and General Sales Offices: 5042 Grand Central Terminal Bldg., New York City  
General Offices and Works at York, Pennsylvania

# *An Entirely New* **Merchandising Plan**

## **SMALLER STOCK BIGGER TURNOVER MORE PROFIT**

### **SERVICE STOCK— CUSTOM MADE CHAINS.**

There are now over forty sizes of tires in general use. Dealers generally carry only the sizes of tire chains to fit tires in most common use. Hoff Custom Made Chain Stock enables a dealer to supply from a stock of only five sizes tire chains that will fit any size tires.

Hoff Custom Made Chain is made up of two strands of side chain in 100 foot lengths, with the Cross Members assembled in it. We furnish the dealer with a chart which shows the required number of Cross Members for all sizes of tires. The dealer merely counts off the number of Cross Members, cuts the side chain, attaches the fasteners with links provided, thereby making a set of chains of the size required—and it takes less than five minutes. No special tools are required and no loss results from any short lengths remain-

ing, as they are quickly added to a new hundred-foot length with the same link that is used for attaching the fasteners.

This method of merchandising Hoff Chains eliminates slow selling sizes, insures rapid turnover, gives a chain stock that is 100 per cent salable, and gives the dealer a greater profit because the chains cost him considerably less than when purchased cut to length and packed in standard packages.

Distributors are being appointed throughout the United States and service dealers are being appointed through these distributors. Before making contracts for future requirements of tire chains, ask for a complete explanation of the Hoff Merchandising Plan and the full story of the ROTATABLE TRIANGULAR TUBE CROSS MEMBER that has revolutionized tire chains.

### **Hoff Metal Products Co.**

Executive and General Sales Offices: 5042 Grand Central Terminal Bldg., New York City

General Offices and Works at York Pennsylvania





When a Cusher customer comes back, it's for something profitable to you—not for Cusher service. There isn't any.

There is no stretch in the steel cable of Cushers; no periodic readjustment to make. The one original factory setting of Cushers is the only setting ever made.

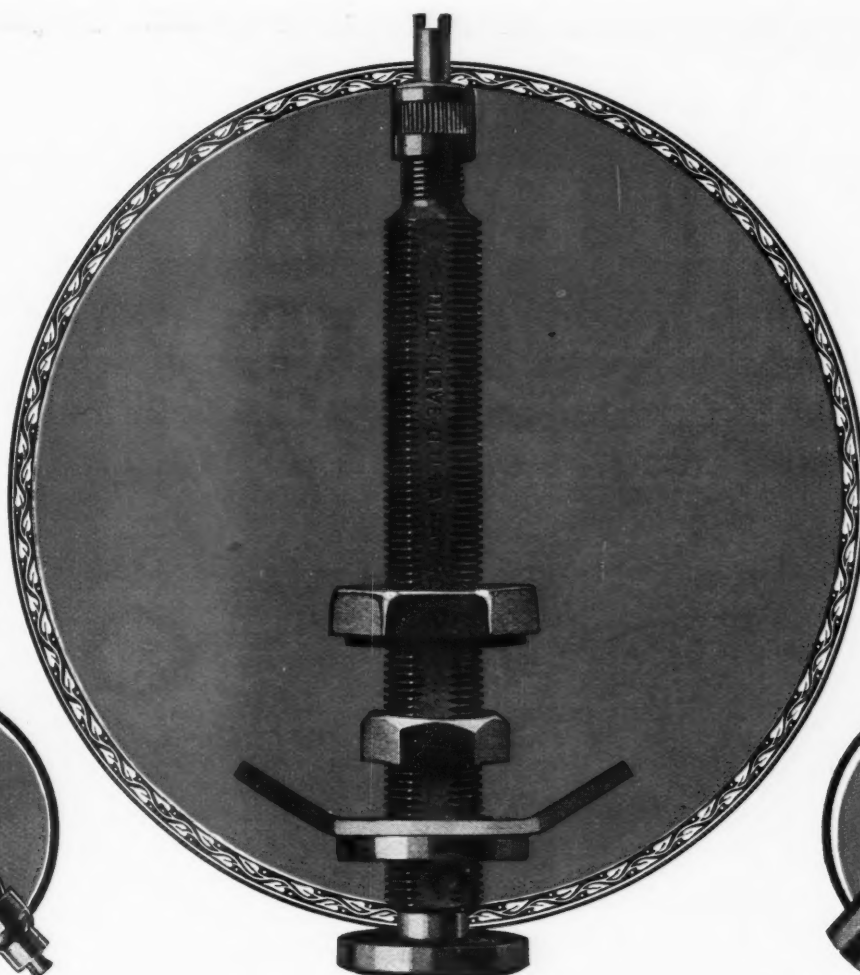
That's the kind of spring control device dealers and jobbers have been awaiting. And Cushers are a doubly attractive proposition because just one size exactly fits all cars. The Cusher compensating clutch automatically suits Cusher action to each car, better than scores of sizes could do!

Cushers and the Cusher organization are producing the accessory sensation of years for dealers and jobbers.

**CHICAGO ROLLER SKATE COMPANY**  
MANUFACTURERS OF SCREW MACHINE AND AUTOMOTIVE PRODUCTS  
*Cushers Sales Dept., Fulton-Dean Co., 332 S. Michigan Avenue, Chicago*



# CUSHERS



**Dill Valve Inside**  
Protected valve stem  
and spring—won't  
bend or jam. Set of  
5 retails for 30c.

**Dill Instant-On**  
Valve cap and dust  
cap combined. On or  
off in 5 seconds. Retail  
price—5 for \$1.00.

## Modern Tires Need Modern Valve Equipment

**T**HE growing number of low pressure tires makes good valve equipment more vital than ever. *Unvarying air pressure must be maintained.* And that's the reason back of the tremendous demand for the famous Dill line of standard tire valves and valve parts—designed and manufactured to give better valve service.

Dill valve equipment is used by most well known tire manufacturers. The Dill Valve Inside and Dill Instant-On are known to thousands of dealers as fast turn-over products that meet a rapidly growing demand.

THE DILL MANUFACTURING COMPANY • Cleveland, Ohio  
*Manufactured in Canada by the Dill Manufacturing Company of Canada, Ltd., Toronto*

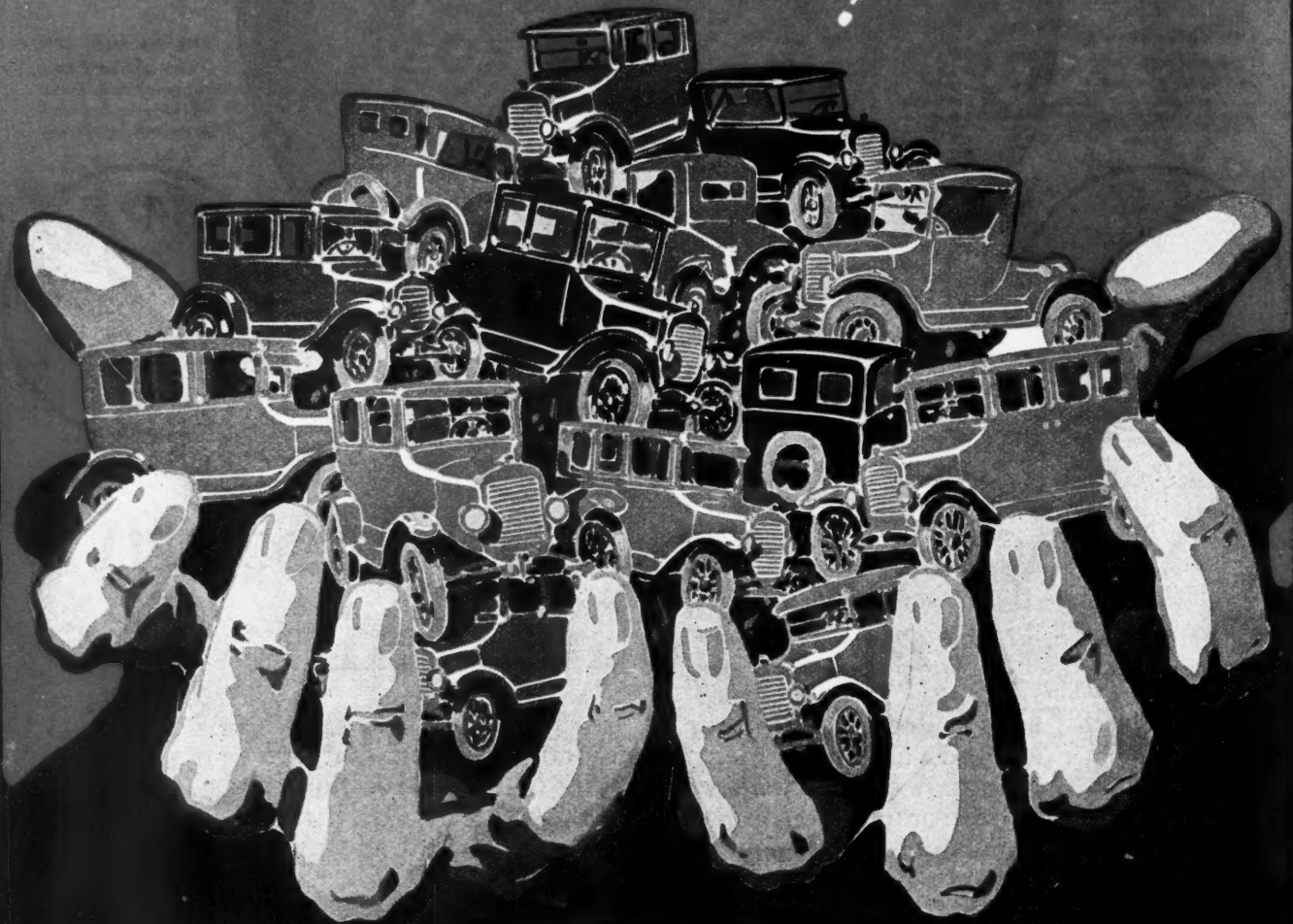
# DILL

**Standard Tire Valves and Valve Parts**



# SCOOP UP THAT FORD BUSINESS

By Using the Lining  
that is reinforced  
**ASBESTOS !**



## Thermoid

HEAVY DUTY

**TRANSMISSION LINING**  
**FOR FORD TRUCKS AND CARS**

Like every **Thermoid** product-IT WEARS

**M**ORE than fifteen and a half million cars and trucks on the road in 1924! And half of them are Fords! Isn't that Ford business worth going after?

What is every Ford owner looking for? A Better Transmission Lining that will give him longer and better service than any other.

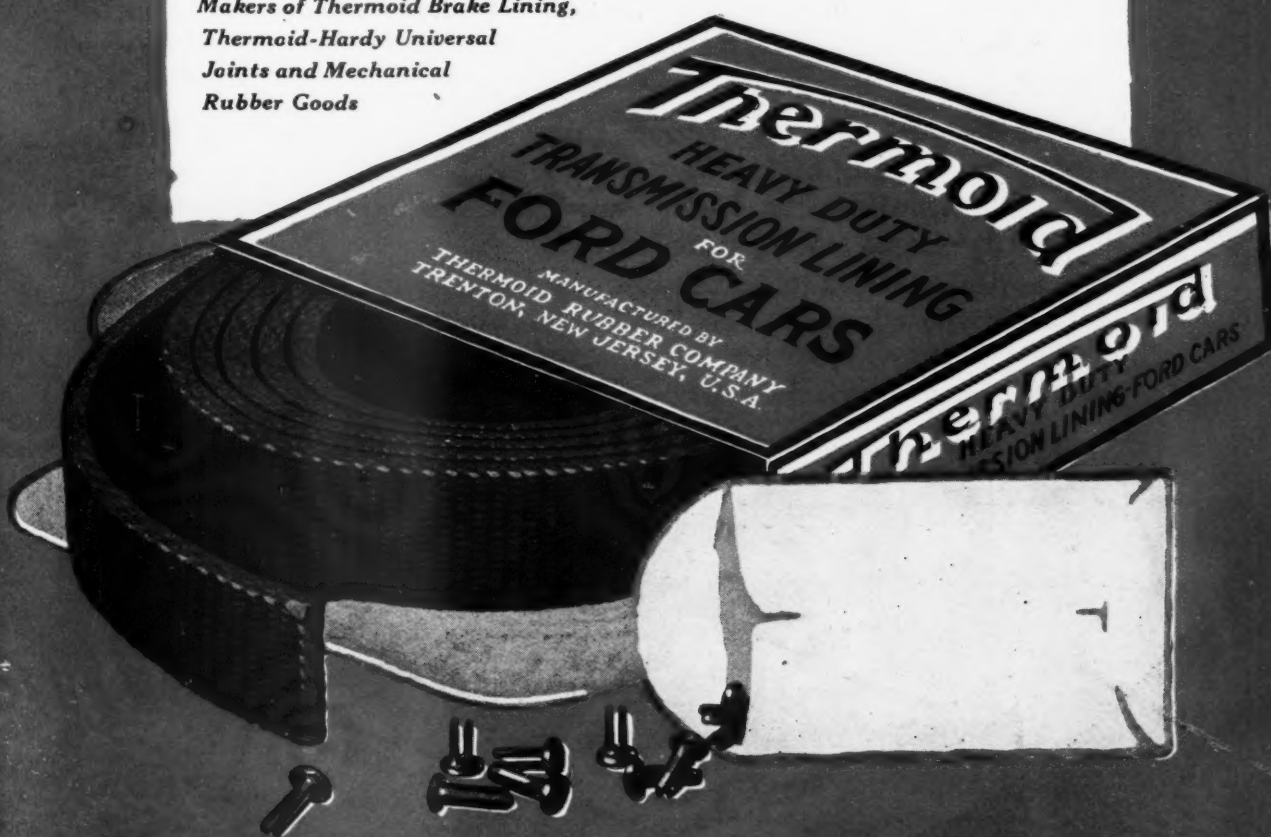
Which is that *better* transmission lining? One made of cotton or—"Thermoid Heavy-Duty," the Reinforced Asbestos Lining?

You answer that last question.

### THERMOID RUBBER COMPANY

Factories and Main Offices  
TRENTON, N. J.

*Makers of Thermoid Brake Lining,  
Thermoid-Hardy Universal  
Joints and Mechanical  
Rubber Goods*







## CARBON REMOVING BRUSH

Zip!—off come all carbon deposits!

**T**HE flint-like crystals as well as the heavy softer deposits are all peeled off in a jiffy with the Sioux Carbon Removing Brush. You can easily get into the corners and out-of-the-way spots and do a good clean job in jig time.

It's the patented "Sioux" construction—the specially made stiff wires overlapping each other and making a double contact—that makes this new brush so effective in carbon-removing work. It's sturdy—lasts a long time.

Made in two sizes—No. B66 with heavy wire for rough surfaces where carbon must be taken off by force—and No. B67 with fine wire for machined surfaces and for aluminum pistons where high polish is required. Set of two sizes, [No. B68.]

Used with small electric drills or Sioux Flexible Shaft.

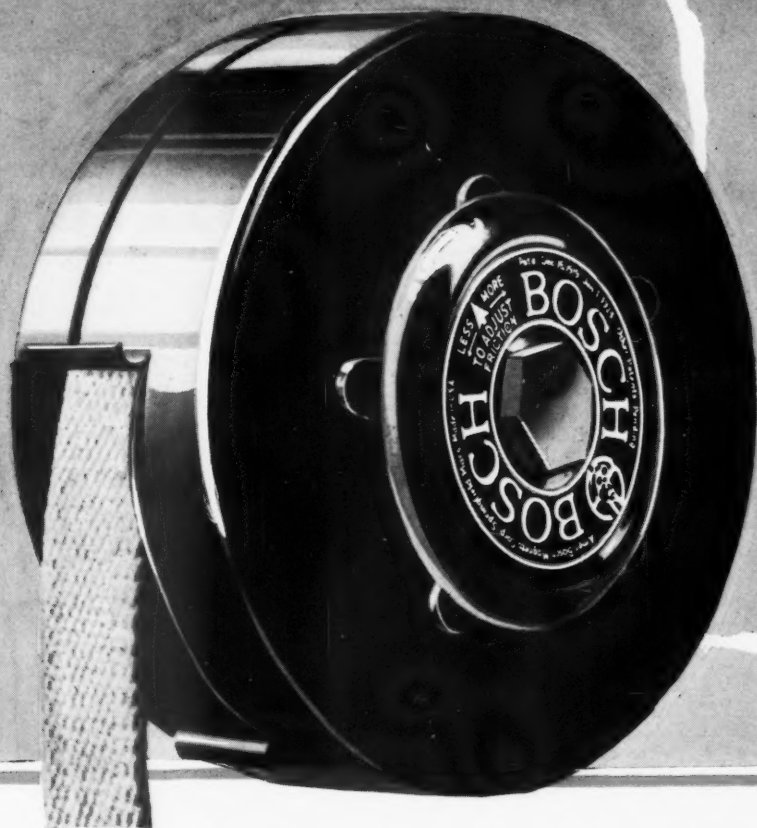
**YOUR JOBBER SELLS IT**

ALBERTSON & CO.

SIOUX CITY, IOWA

**SIOUX**  
Trade Mark Reg. U.S. Patent Office





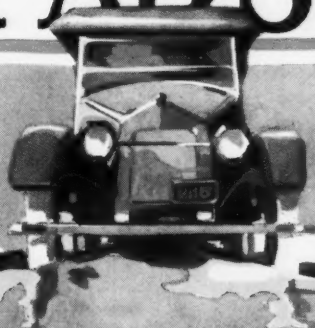
**Best for Balloon  
Tires, Too**

The Bosch is growing in popularity faster than any other shock absorber on the market. Its sales are multiplying at a marvelous rate because that vast army of car owners—the great middle class—have found it to be the most practical, efficient and durable shock absorber sold at a price they can afford to pay. You can reach the biggest market in your town, gain prestige and good will, and make big profits by selling the Bosch Shock Absorber. It's a **QUALITY** product at popular prices, and a real car necessity.

For Fords (3-point control set, complete) \$16.50 per set.

Medium cars \$15 per pair. Heavy cars \$20 per pair.

# BOSCH SHOCK ABSORBER



*Smooths the Road*



# Users say -

State of Iowa  
**The Board of Parole**  
Des Moines

September 9, 1934

Mr. Clyde Hedberg, Esq.,  
Capt. Bernard-Turner  
Machine Shop,  
Des Moines, Iowa

Dear Mr. Hedberg:-

I wish to tell you of my experience  
with Bosch Shock Absorbers.

I have used two other popular makes,  
and find that the Bosch is far superior to any  
of them. They smooth out ruts, and the biggest  
advantage over the others is the easy way that  
the user has of making his own adjustments.

I drive an average of about 1000 miles  
a week, and this gives me a good chance to test  
them. I recently made a 2,800 mile trip in six  
days actual driving time, and the Bosch Shock  
Absorbers performed wonderfully all the way.

One great advantage that they have over  
others is the way they control the rebound of the  
car. I had a lot of trouble with breaking straps  
on the other makes but I have never had a broken  
strap with the Bosch and I have given them severe  
tests in the past twelve thousand miles.

With best wishes, I am

Yours most truly,  
*W. J. Taylor*  
Parole Officer, Des Moines, Iowa

**LANTON AUTO EQUIPMENT COMPANY, INC.**

MAKERS OF  
**AUTORITE ACCESSORIES**  
**THE AUTORITE LUGGAGE CARRIER**  
GRAND CENTRAL TERMINAL BUILDING  
NEW YORK

May 5, 1934.

American Bosch Magnete Corp.,  
Service Station,  
17 West 60th Street,  
New York City.

Gentlemen:

interest you. My experience with my fifth Dodge car may

On all four Dodge cars which I have pre-  
viously owned, I have had snubbing devices of one kind or  
another installed. Although a necessity, they were all of  
them more or less of an annoyance, requiring frequent adjust-  
ments that only a Service Station could properly make, and  
strap renewals which were expensive.

I drove this new car two weeks and then had a  
set of the Bosch Shock Absorbers installed. I chose "Bosch"  
because I could, myself, make any adjustments (if required)  
so easily and also because the straps do not undergo any wear.

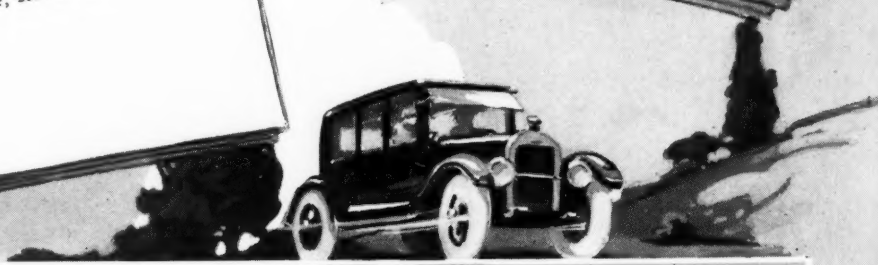
The improvement in the riding of my car far  
exceeds my expectations. Your device is not only superior in  
durability, but it truly excels in shock absorbing, any of the  
installations I have used heretofore.

Last Friday I covered an even three hundred  
miles without experiencing any undue fatigue. This has not  
been true of previous trips of equal mileage with equipment  
that is not as effective as the Bosch Shock Absorber.

Very truly yours,

*W. J. Taylor*  
General Sales Manager,  
Lanton Auto Equipment Co., Inc.

ARM:PEP



Read the two letters above—they are typical. Thousands of other users are just as enthusiastic; they're praising Bosch Shock Absorbers just as liberally. That's a wonderful help in making sales, for every Bosch user sends his friends to the dealer who sold him—and they buy, too.

Start the ball rolling in your town—sell a few sets of Bosch Shock Absorbers and you'll be amazed at the new customers it will bring you. Good will and enthusiasm are wonderful selling aids. A satisfied customer is the best salesman.

# Dealers say-

PROSPECT 2112

**The Auto Electrical Maintenance Co.**  
SERVICE ACCESSORIES PARTS  
IGNITION LIGHTING STARTING

2222 Prospect Ave.

February 2nd, 1925.

American Bosch Magneto Corporation  
95 Hancock Avenue West,  
Detroit, Michigan.

Attention: C. L. Shedd

Gentlemen:-

Please rush shipment, 100 pair Bosch Shock Absorbers, as per order attached.

Your shock absorber has proven a splendid sales item and profit maker. We are concentrating our sales efforts on it because we find they sell readily, give wonderful satisfaction and purchasers are so enthusiastic that they send their friends to us.

From a performance, turnover and profit standpoint, we regard Bosch Shock Absorbers as our leader.

Yours very truly,

THE AUTO ELECTRICAL MAINTENANCE COMPANY

*G. O. Rafuse.*  
G. O. Rafuse.

COR:R

Encl (1)



Bill Phone Columbia 7100



**MOTOR PARTS COMPANY**

DISTRIBUTORS

Automotive-Electrical and Radio Equipment

1425 NORTH BROAD STREET

PHILADELPHIA, PA.

Jan. 21, 1925.

KEYSTONE PHONE PARK 3026



American Bosch Magneto Corporation,  
17-23 West 60th Street,  
New York City.

Gentlemen:

We were very glad to have your letter regarding the extensive advertising campaign contemplated for 1925 on the Bosch Shock Absorber.

You will note from your records that we have sold a great number of these units throughout Eastern Pennsylvania and Southern New Jersey and have found them an excellent sales item.

The demand has been for a shock absorber that would be efficient, reliable and economical. We have found the Bosch unit to supply that need in every respect.

From the dollars and cents profit we are very well satisfied with the proposition.

Yours very truly,

MOTOR PARTS COMPANY

By

*E. J. Harbison*  
E. J. Harbison  
Mgr.

Profit! That's what you want, and every other dealer wants it, too. The firms whose letters are reproduced above—and thousands of other dealers—have found big profits in the sale of Bosch Shock Absorbers. Three standard sizes service all cars—no special types needed for balloon tires. A small stock and frequent turnovers—that's the Bosch money making plan. That's the plan for YOU. It pays big dividends.

AMERICAN BOSCH MAGNETO CORPORATION

Main Office and Works: Springfield, Mass.

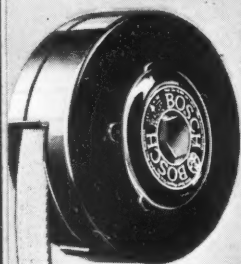
Branches: New York Chicago Detroit San Francisco



# Profit Makers!



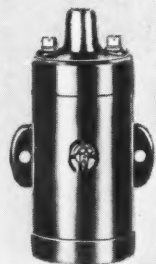
Electric  
Windshield  
Wiper



Shock Absorber



Spark Plug



Ignition Coil

## The BOSCH Long Line of Automotive Necessities

You can make big money selling the Bosch Shock Absorber, but you can make a lot more if you sell the complete Bosch Line. Consider these important facts—

1. Every Bosch Product is a utility unit—each performs an important function and is a real necessity.
2. Each is a **QUALITY** Unit—sold at a popular price.
3. Each is fully guaranteed by the Bosch Corporation.
4. Discounts to dealers are liberal—turnovers frequent.
5. High grade selling aids are provided.
6. All you have to do is sell them—there are 2000 Bosch Representatives to keep them serviced.
7. Bosch products sell easily, for they are advertised everywhere in a big spectacular way, and they have the Bosch Reputation back of them.

### You Can Profit Still More by Becoming an Official Bosch Dealer

The requirements are simple—the benefits many. Some of the advantages you would get are:—

Special discounts on all Bosch material. Greater profits through increased sales. Personal assistance from Bosch salesmen. New markets, and added prestige locally. Reference books, sales literature, etc. Sales promotion and advertising service.

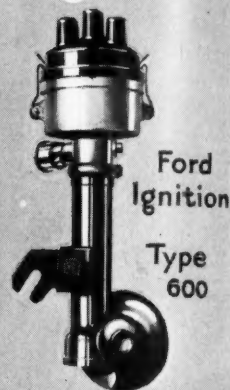
For full particulars, fill out coupon and mail **TODAY**.

**American Bosch Magneto Corporation**  
Main Office and Works : Springfield, Mass.

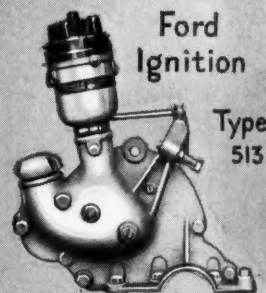
#### Branches

17-23 W. 60th St., New York  
3737 Michigan Ave., Chicago

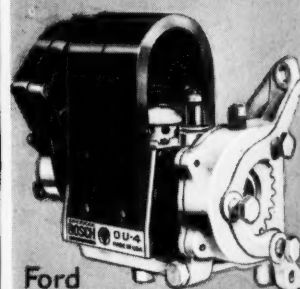
89-95 Hancock Ave. W., Detroit  
1262 Post Street, San Francisco



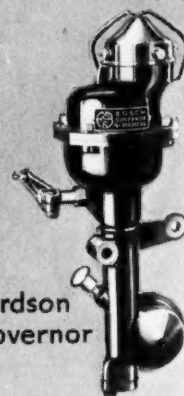
Ford  
Ignition  
Type  
600



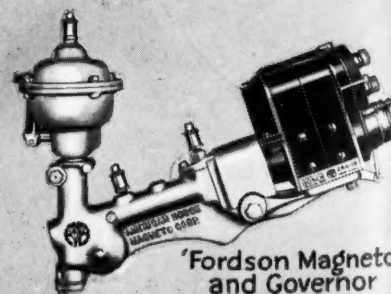
Ford  
Ignition  
Type  
513



Ford  
Ignition Magneto  
Fitting



Fordson  
Governor



Fordson Magneto  
and Governor

## Mail This Coupon TODAY

### AMERICAN BOSCH MAGNETO CORPORATION

Send me full particulars about your:

- |   |  |
|---|--|
| <input type="checkbox"/> Complete line    | <input type="checkbox"/> Ford Ignition Systems     |
| <input type="checkbox"/> Shock Absorber   | <input type="checkbox"/> Fordson Ignition System   |
| <input type="checkbox"/> Windshield Wiper | <input type="checkbox"/> Fordson Throttle Governor |
| <input type="checkbox"/> Spark Plug       | <input type="checkbox"/> Bosch Dealer Proposition  |

Ship me the following units at quantity discount C.O.D.—

.....

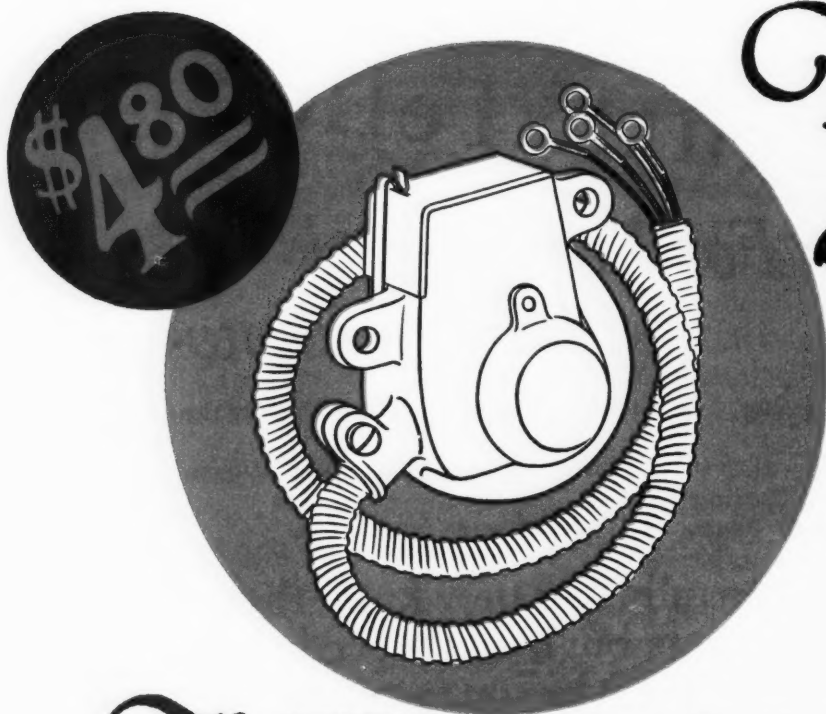
.....

.....

Firm Name.....  
Street Address..... City..... State.....  
Date..... Signature.....







*Here's  
Something  
NEW*

## *The Kingston* <sup>L-T</sup> Distributor-Timer

Here is a high class distributor selling at the price of an ordinary timer.

Different in design and principle, handsome, splendidly made, it offers the dealer a year around seller on a highly profitable basis. There is a big waiting demand for a distributor of this high character.

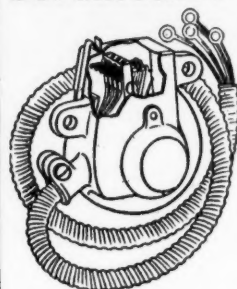
Four sets of adjustable contact points, extra large size; contact levers positive in operation; cables contained in flexible metal conduit; quadrate breaker cam (4 cams in one) of best tool steel; points solidly assembled in bakelite.

*Let the KINGSTON lead your spring sales*

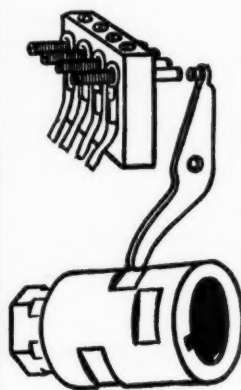


# KINGSTON

### *Points of SUPERIORITY~*



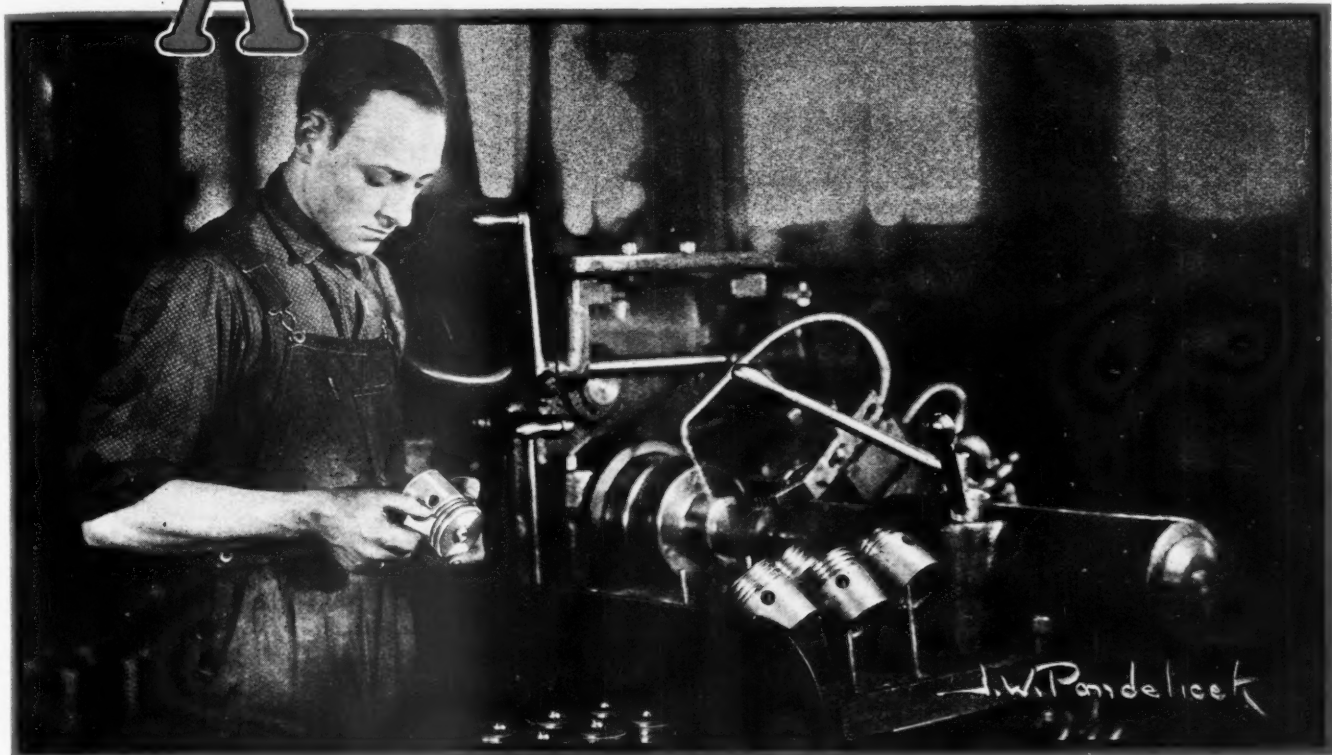
Case of aluminum Cables in flexible metal conduit.



Details of point assembly in block of bakelite fibre, with contact lever and quadrate cam. Points extra large and of best material. All parts quickly and easily replaceable.

NO. 4 OF A SERIES OF ADVERTISEMENTS EXPLAINING ARROW HEAD METHODS OF MANUFACTURE

# Arrow Head



Besides final inspections, check-inspections follow each operation

## "Mikes" are checked daily to one ten-thousandth inch

**E**ACH piston, piston pin, axle and drive shaft is checked *at each operation* with micrometers and gauges. Nor can these instruments become inaccurate. They're inspected daily with Johansson blocks—the international standard. Our own special tools, dies, jigs and fixtures which automatically hold all work in the best possible position for perfect machining, reduce human error to a minimum. Pinholes are drilled in pistons on special machines that can drill the holes in only perfect alignment.

These are but a few of the many precautions that insure Arrow Head Precision.

Send for our new booklet giving practical hints on installing replacements and outlining Ten Profitable Opportunities for Motor Repair Men. It is a valuable book and well worth sending for. A post card brings it—FREE. Write now.



Each genuine Arrow Head part is marked with an Arrow Head

ARROW HEAD STEEL PRODUCTS COMPANY  
Minneapolis, Minnesota

## Pistons ◊ Piston Pins ◊ Axle and Drive Shafts



# for 9 years~

- ❑ **Uninterrupted sales increases.**
- ❑ **The outstanding record of financial success.**
- ❑ **Recognized top quality.**
- ❑ **Always first with new style developments.**
- ❑ **A constant swing of leading tire merchants to General.**
- ❑ **The original distributor-first policy.**
- ❑ **Money-making distributors permanently established.**
- ❑ **Continuous national advertising.**
- ❑ **Unequaled local advertising and sales-merchandising co-operation.**

Today, aside from the few makes of tires that come as factory equipment on new cars, General has by far the largest sale . . . several times that of any other make . . . and all of this handled by just 869 distributors.

The Mark  
of Leading  
Tire Stores  
Everywhere



*The*

# GENERAL CORD

—goes a long way to make friends

BUILT IN AKRON, OHIO, BY THE GENERAL TIRE AND RUBBER COMPANY

# Goodrich Dealers Congratulated



This Kew Ram  
is a third place  
winner at recent  
Fair, Kew,  
England, and  
awarded First  
Prize by Prince  
Henry.

## Apart from the common herd

Like a pedigree ram in a flock of ordinary sheep, Goodrich Tires stand out from the herd of ordinary tires. Like blooded stock, the line is developed for special characteristics, and special qualities.

The farmer knows what blooded stock means in sheep, cattle, and horses. He knows it means strength of endurance and quality of performance.

It has the same significance in Goodrich Tires. And for the same underlying reason: Fifty-four years ago Goodrich began developing rubber for strength and endurance.

Goodrich experiment, Goodrich testing, Goodrich experience, have produced tires which render the maximum service at the minimum cost.

This is why they are outstanding in promise and fulfillment; the value in what you pay and in what you get.

THE B. F. GOODRICH RUBBER COMPANY  
Established 1870 Akron, Ohio

"Best in the  
Long Run"

## Goodrich Tires

Listen in: On the Silvermaster Radio Program every Tuesday night, 10 to 11 o'clock P. M. (Eastern Standard Time). Stations: WEAF, New York; WJAR, Providence; WFL, Philadelphia; WCAE, Pittsburgh; WGR, Buffalo; WEEI, Boston. And every Monday night 10 to 11 P. M. (Pacific Coast Time) Hollywood Station KNX.

Reproduction—greatly reduced—of full page advertisement from the strong campaign on Goodrich Tires now running in Successful Farming.



More than 850,000 copies monthly to real farmers in real farm territory—concentrated mainly in the "Heart States."

Comparisons regarding quality of circulation are welcomed—"There's a Difference in Farm Papers."

If you are a Goodrich Tire Dealer, you are to be congratulated. You have the strong advantage of selling products that are advertised aggressively and consistently—year in, year out. Through advertising in Successful Farming and other mediums, the B. F. Goodrich Rubber Co. have made the name and merits of Goodrich Tires known. They have sold millions of farm families on the quality of Goodrich Tires and the service rendered by Goodrich dealers.

Farmers believe in merchandise they know about—and more than 850,000 farm families "actually engaged in farming" read Goodrich advertising in Successful Farming.

## Successful Farming Advertising Helps You to Sell Goodrich Tires

Goodrich advertising in Successful Farming establishes and maintains the merits of this old and famous line in the minds of farmers. This helps you to sell. Less explaining. Your time is saved.

Each month more than 850,000 farm families turn to this favorite farm paper of theirs for definite advice regarding farm methods. They read the advertisements for information about products of all kinds which will add to convenience, promote health or increase profit.

The B. F. Goodrich Rubber Co. long ago investigated and found, as many other manufacturers have found, that Successful Farming is an important factor where there is general farming. They advertise to these farmers to help move their products for you.

Goodrich reputation, sustained through advertising and service, plus your standing in the community, make an unbeatable sales combination.

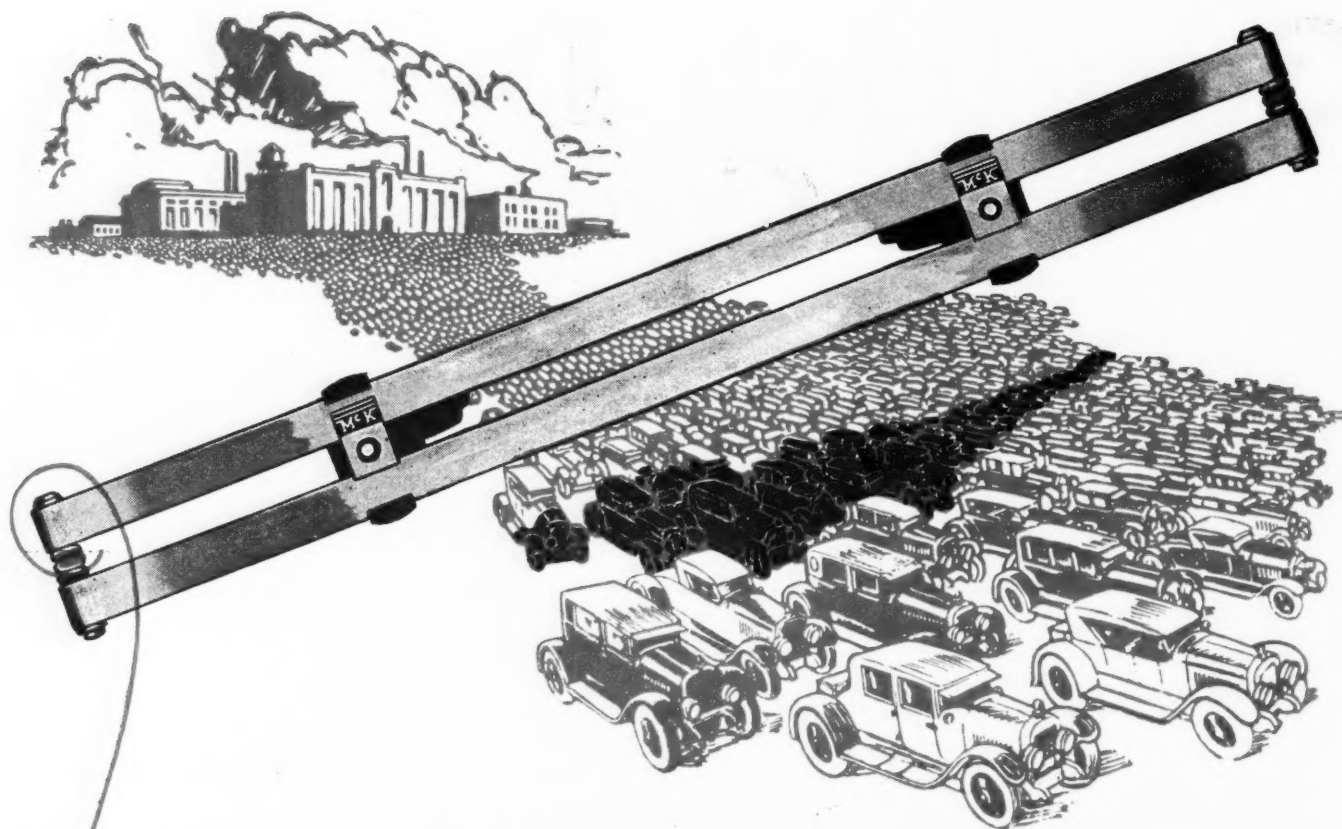
### THE MEREDITH PUBLICATIONS

SUCCESSFUL FARMING - THE DAIRY FARMER  
BETTER HOMES AND GARDENS

E. T. MEREDITH, Publisher, Des Moines, Iowa







## A Bumper Crop this Year for the McKay Dealer

Here's why — the outstanding improvements in McKay designs give McKay Dealers the edge on the other fellow. McKay Bumpers are new in design and new in construction. They add greater beauty and better protection at the same time and that's what the motorist wants.

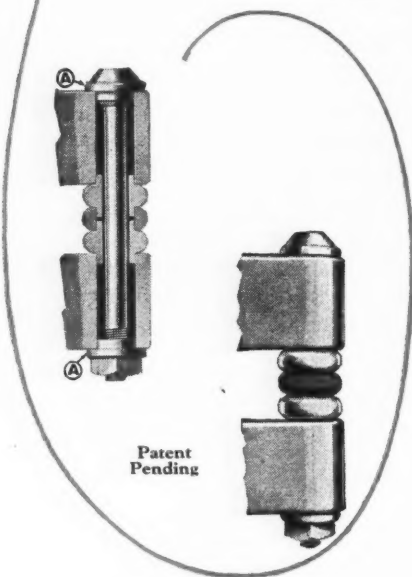
The McKay bead end construction combines these two important qualities. While it improves the appearance it adds strength. The end bolts are held away from the bars and beads by patented flange washers (A). These bars and beads absorb the shock leaving the bolts firmly in place and keeping the bars rigid and always in alignment. And in McKay Bumpers you'll find *double* resistance. Both brackets and bars give car protection.

*The McKay line of Bumpers is complete.*

*Write for our dealer proposition.*

UNITED STATES CHAIN & FORGING COMPANY  
UNION TRUST BUILDING, PITTSBURGH, PA.

Makers of McKay Tire Chains, McKay Shurout Chains, McKay Ready Repair Links, McKay Bumpers, and Chains for all Industrial and Commercial purposes.



# McKAY <sup>RED</sup> <sub>BEAD</sub> BUMPERS

# MCK

# ATWATER KENT RADIO



## Satisfied Users

**T**HE NAME ATWATER KENT on radio is a definite assurance of satisfaction to an ever-increasing number of radio users—ATWATER KENT dealers everywhere will confirm this; they know by actual experience that this name on the radio they sell has helped them attain a place of leadership among the radio merchants of their community.

If you could visit the ATWATER KENT plant, the largest of its kind in the world, you would know

why there is no better radio made. You would see that all the machinery is of the latest design for radio building, that every workman is a master at his job, that every bit of material used is the finest that money can buy.

You would realize that the reasons for ATWATER KENT prestige are fundamental and built-in; that under such conditions there can be but one result—satisfied users; and satisfied users are the biggest asset a radio merchant can have.

*Descriptive literature on request*

ATWATER KENT MANUFACTURING COMPANY  
4733 Wissahickon Ave., Philadelphia, Pa.

THINK WHAT IS BACK OF IT



## The Call of the Open Purse

*"In the spring a young man's fancy lightly turns to thoughts of love."*

*Maidens' thoughts (so called) are just about one thousand miles above.*

*Mother dreams of spring house cleaning—how she revels in the muss.*

*Father digs down in his jeans to overhaul the family bus.*

## FIX 'ER UP

AND what an institution this spring overhaul is getting to be. In round figures there are something like fifteen million cars that should have their electrical system looked over before the strenuous grind of a long hot summer sets in. Some of them will not need any rewiring, but many of them will.

Someone must accept responsibility for the complete electrical system of the car you service of which there is no more important part than the cable which connects the various units.

The time to do such work is when something else is being done on the car. This opportunity is heaven sent to the progressive Automotive Service Station. Never let it be said that you failed to heed the "call of the open purse."

Packard sales helps and the use of Packard Cable will help tremendously to make "rewiring" a profitable phase of your business.

**The Packard Electric Company**

WARREN, OHIO

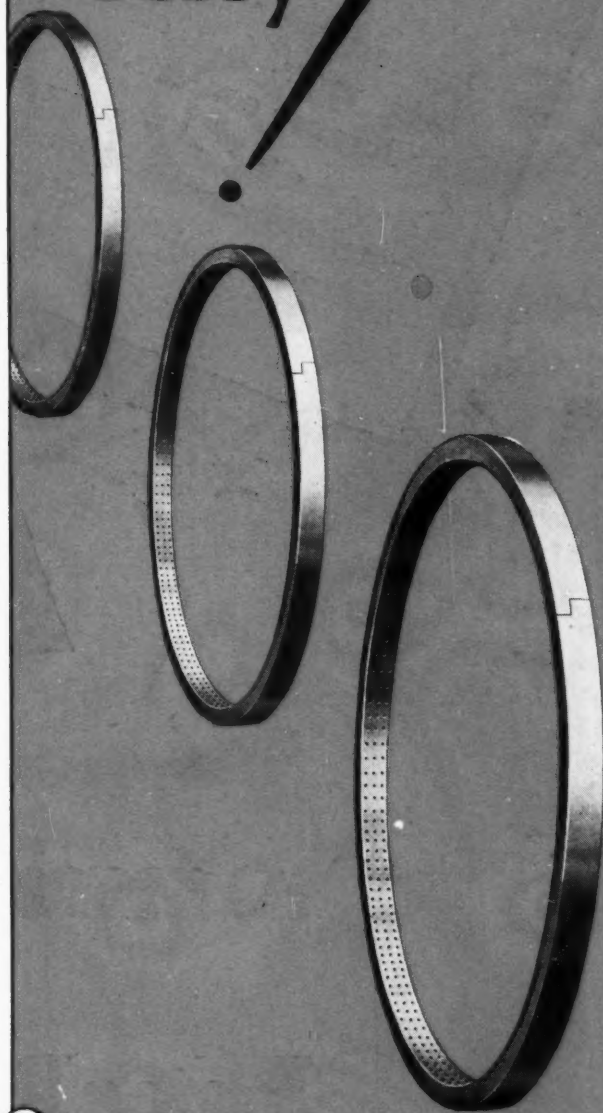
*Packard is never seen, except on goods of honest value—*

America's  
leading  
replacement  
ring ~ ~ ~

**American**  
***Hammered***  
**Piston Rings**

~ ~ won  
it's  
position  
of  
leadership  
through  
unfailing  
merit  
in  
years  
of actual  
service

More than  
a million a  
month - for  
replacement  
only /





## Recognized High Quality

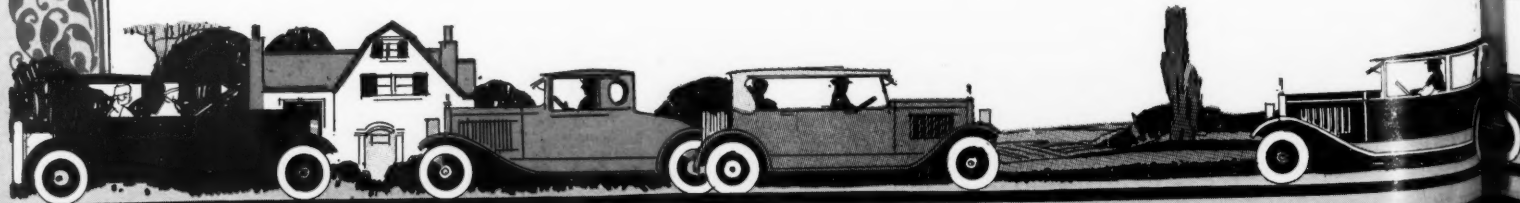
AMERICAN Hammered  
Piston Rings have passed  
every conceivable test—in  
laboratory and engine usage  
—in races, hill climbs and  
endurance contests.  
Hammering—by our special  
patented process—gives them  
a permanent, uniform tension.

“America’s leading  
replacement ring”

## National Endorsement

THERE is a reason for  
its position of leader-  
ship in the replacement  
field. American Ham-  
mered has been endorsed  
in all parts of the country  
by leading automobile  
manufacturers, jobbers  
and service men, as well  
as the motoring public.

# American *Hammered* Piston Rings



# Here's a combination you can't beat!

ASK any successful automotive dealer what is the very finest piston ring proposition to handle and he will tell you: — A high grade ring selling at a reasonable price, with nation-wide distribution.

The American Hammered Piston Ring is just that.

Furthermore, the company behind the product is known in every territory as stable and strong in its entire selling policy and enjoys an enviable reputation for fair dealing.

The trade has not yet recovered from its surprise that a ring of

this character can be produced to sell so reasonably — at thirty cents. Steadily growing demand and huge quantity production are the reasons why.

The sale of American Hammered Piston rings for each month of 1924 exceeded that of 1923 by 75 to 150 percent.

The principal importance of this statement is that dealers handling the American Hammered line made a corresponding increase in sales and profits.

Do your stocks include a fast selling, profitable piston ring?

AMERICAN HAMMERED PISTON RING CO.  
BALTIMORE, MD.

FACTORY STOCKS

BALTIMORE  
Bush & Hamburg

CHICAGO  
2133½ S. Michigan Avenue

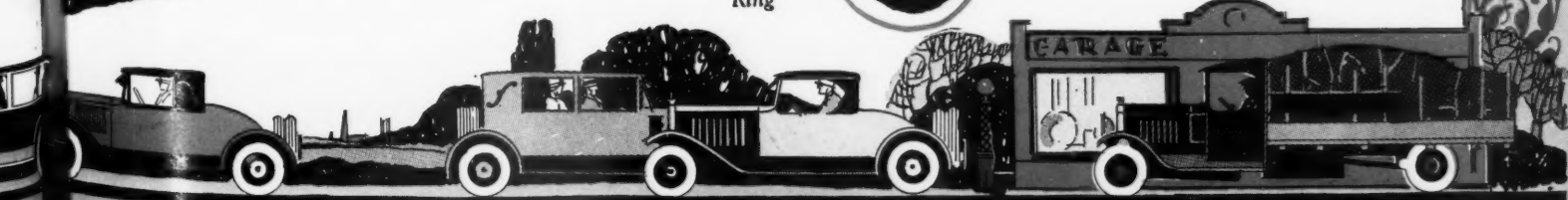
SAN FRANCISCO  
931 Larkin Street

and low  
Price

30¢



"The  
National  
Ring"





# And these jobbers supply them

Our distributor list reads like a selection of red letter leaders.  
You will find them in every jobbing center in every state.

## ALABAMA

Johnson Tire & Auto Co. .... Montgomery  
McGowan-Lyons Hdwe. & Supply Co. .... Mobile  
Moe-e-Handley Hardware Company .... Birmingham

## ARKANSAS

Crow-Burlingame Company .... Little Rock  
Fort Smith Automotive Company .... Fort Smith  
Turner Auto Supply Co. .... Texarkana

## CALIFORNIA

Baker, Hamilton & Pacific Co. .... San Francisco  
Banta Company .... Los Angeles  
California Auto Supply Company .... Stockton  
Chanslor & Lyon Company .... San Francisco  
" " " " .... Fresno  
" " " " .... Los Angeles  
" " " " .... Oakland  
Dunham, Carrigan & Hayden Co. .... San Francisco  
Electric Appliance Company .... San Francisco  
Featherstone, E. A. .... Los Angeles  
Jackson, W. E. & W. H. .... San Francisco  
Kimball-Upson Company .... Sacramento  
McCoy Motor Supply Co. .... San Francisco  
" " " " .... Los Angeles  
Motor Hardware & Equipment .... San Diego  
Thomson-Diggs Company, The .... Sacramento  
Waterhouse & Lester .... San Francisco  
" " " " .... Los Angeles  
Weinstock-Nichols Co. .... San Francisco  
" " " " .... Oakland

## COLORADO

Hendrie & Bolthoff Mfg. & Supply Co. .... Denver  
Sweeney Electrical Co., The B. K. .... Denver

## CONNECTICUT

Ensforth & Son, L. L. .... Hartford  
Horton-Gallo-Creamer Co. .... New Haven  
Merrick & Co., The C. S. .... New Haven

## DELAWARE

Motorcar Service Company .... Wilmington

## DISTRICT OF COLUMBIA

Rubel & Co., Inc., Chas. .... Washington

## FLORIDA

Berner-Pease Company .... Miami  
Consolidated Automotive Company .... Jacksonville  
Knight & Wall Company .... Tampa  
Patrick's, Inc. .... Jacksonville  
Wholesale Auto Supply House of Tampa .... Tampa

## GEORGIA

Alexander-Seewald Co. .... Atlanta  
Butler Bros. Company, Inc. .... Columbus  
Ozburn-Abston Company .... Atlanta

## IDAHO

Inter-Mountain Electric Co. .... Pocatello

## ILLINOIS

Automobile Supply Company, The .... Chicago  
Barrett Hardware Company .... Joliet  
Couden Co., O. W. .... Danville  
Cummings & Emerson .... Peoria  
Electric Appliance Company .... Chicago  
Washington Auto Supply .... Washington

## INDIANA

Cooper Rubber Co., The I. J. .... Indianapolis  
Fort Wayne Iron Store Co. .... Fort Wayne  
Goodlin Automotive Equipment Co. .... South Bend  
Wheeler Company, The .... Indianapolis

## IOWA

Cedar Rapids Auto Supply Co. .... Cedar Rapids  
Ernsdorff Iron Company, John .... Dubuque  
Herring Motor Company .... Des Moines  
Repass Automobile Co. .... Waterloo

## KANSAS

Lee Hardware Company .... Salina  
Motor Equipment Company .... Wichita

## KENTUCKY

Peaslee-Gaulbert Company, Inc. .... Louisville

## LOUISIANA

Cupples-Loneragan Co., Inc. .... Shreveport  
Southern Hardware & Woodstock Co. .... New Orleans  
Stauffer-Eshleman & Co., Ltd. .... New Orleans

## MAINE

Bailey Co., The James .... Portland  
Bragg & Sons, N. H. .... Bangor  
Darling Automobile Company .... Auburn  
Farrar-Brown Co., Inc., The .... Portland

## MARYLAND

American Sales Company .... Baltimore  
Hunt & Co., J. R. .... Baltimore

## MASSACHUSETTS

American Motor Equipment Co. .... Boston  
Duffley-Rolle Co., Inc. .... Springfield  
Lewis Automotive Equipment Co. .... Worcester  
Wetmore-Savage Company .... Boston  
" " " " .... Springfield

## MICHIGAN

Brown & Sehler .... Grand Rapids  
Cummings Brothers .... Detroit  
" " " " .... Flint  
General Sales Company .... Lansing  
Hawkes Auto Equipment Company .... Lansing  
Michigan Automotive Supply Co. .... Detroit  
Michigan Replacement Parts Corp. .... Detroit  
Saginaw Piston Service Co. .... Saginaw

## MINNESOTA

Duluth Auto Supply Co. .... Duluth  
Kelley-How-Thomson Co. .... Duluth  
Minneapolis Iron Store Co. .... Minneapolis  
Nicks, Dean & Gregg .... St. Paul  
Reinhard Brothers Co., Inc. .... Minneapolis  
Western Motor Supply Co. .... Minneapolis  
Williams Hardware Co. .... Minneapolis

## MISSOURI

Ayers Auto Supply Co. .... St. Joseph  
Fleer-Petty Auto Accessories Co. .... St. Louis  
Frampton Company, The .... St. Louis  
Hausam Company, R. J. .... Sedalia  
Kansas City Automobile Supply Co. .... Kansas City  
Sligo Iron Store Company .... St. Louis  
Sorber-Kuhn Auto Supply Co. .... Joplin

## MONTANA

Montana Hardware Company .... Butte  
Northwestern Auto Supply Co., Inc. .... Billings

## NEBRASKA

Duda, Walter .... Norfolk  
Dutton & Sons Co., W. M. .... Hastings  
Pegau Company, E. A. .... Omaha

## NEW JERSEY

Economy Auto Supply Company .... Newark  
Lebair-Evans Company .... Trenton  
Pruden Hardware Co., W. E. .... Newark

## NEW YORK

Albany Hardware & Iron Co. .... Albany  
Barker, Rose & Clinton .... Elmira  
Dienst Co., Inc., A. P. .... New York  
Elmira Arms Company .... Elmira  
Genuine Automotive Parts Co. .... Brooklyn  
Hunter, Inc., E. E. .... Middletown  
Lowe Motor Supplies Co., Inc. .... New York  
McRae & Company, H. A. .... Troy  
Miller Auto Supply Company .... New York  
Olsted Co., Inc., The .... Syracuse  
Pruden Hardware Co., W. E. .... New York  
" " " " .... Poughkeepsie  
Rowerdink & Sons, W. H. .... Rochester  
Strauss Co., Inc., Joseph .... Buffalo  
United Accessories, Inc. .... Buffalo  
Utica Cycle & Supply Company .... Utica  
Whittemore-Sim Company, Inc. .... New York

## NORTH CAROLINA

Boylan's, Inc. .... Raleigh  
Glasgow-Stewart Company .... Charlotte  
Motor Bearings & Parts Co. .... Raleigh  
Odell Hardware Company .... Greensboro

## OHIO

Bantlin Co., The Julius J. .... Cincinnati  
Bingham Company, The W. .... Cleveland  
Bostwick-Braun Company .... Toledo  
Cooper Rubber Co., The I. J. .... Cincinnati  
" " " " .... Columbus  
" " " " .... Dayton  
Dine-De Wees Company, The .... Canton  
Justus & Parker Co., The .... Columbus  
Keys Motor Supply Co., The .... East Liverpool  
M. & M. Company, The .... Cleveland  
" " " " .... Akron  
" " " " .... Youngstown  
Portsmouth Auto Supply Co. .... Portsmouth  
Toledo Rubber Co., The .... Toledo

## OKLAHOMA

The Motor Equipment Co. .... Chickasha  
Russell Hardware Co., Inc. .... McAlester  
Severin & Company .... Tulsa  
Severin Tire & Supply Co. .... Oklahoma City

## OREGON

Ballou & Wright .... Portland  
Chanslor & Lyon Company .... Portland

## PENNSYLVANIA

Altoona Auto Supply Co. .... Altoona  
Bee Automobile Company .... Allentown  
Dyke Motor Supply Company .... Pittsburgh  
Front Market Motor Supply Co. .... Harrisburg  
General Automotive Supply Co. .... Lancaster  
" " " " .... Harrisburg  
General Motor Supply Co. .... Altoona  
Hersh Hardware Co., Inc., F. .... Allentown  
Johnstown Automobile Co., The .... Johnstown  
Lansing Co., Inc., D. T. .... Scranton  
Miller Hardware Co., C. H. .... Huntingdon  
Myers, Harper F. .... York  
P. D. Q. Company, The .... Philadelphia  
Pittsburgh Auto Equipment Co. .... Pittsburgh  
Roberts Electrical Co., H. C. .... Philadelphia  
Sattler-Evenson Company .... Philadelphia  
Schade Company, H. F. .... Philadelphia  
Supple-Biddle Hardware Co. .... Philadelphia  
Wooding & Company, Jere. .... Hazleton  
Woodwell Company, Joseph .... Pittsburgh

## RHODE ISLAND

Belcher & Loomis Hardware Co. .... Providence  
Goodby-Rankin Company .... Providence  
Waite Auto Supply Co. .... Providence

## SOUTH CAROLINA

Bailey-Lebby Co., The .... Charleston  
Cameron & Barkley Co. .... Charleston  
Fowler-Anderson Company .... Columbia  
Franke & Co., Inc., C. D. .... Charleston  
Gibbs Machinery Company .... Columbia

## SOUTH DAKOTA

Harfield Motor Supply Company .... Aberdeen  
L. & L. Motor Supply Co., The .... Sioux Falls  
Watertown Motor Accessories Co. .... Watertown

## TENNESSEE

Auto Supply Company, Inc. .... Nashville  
Cooper Rubber Co., The I. J. .... Knoxville  
" " " " .... Nashville  
Keith-Simmons & Company .... Nashville  
Mills-Morris Company, The .... Memphis  
Motor Supply Co. .... Chattanooga  
McClung & Co., C. M. .... Knoxville  
Southern Auto Supply Co. .... Chattanooga

## TEXAS

Auto Equipment Company, Inc. .... Wichita Falls  
Auto Supply Company, Inc. .... Austin  
Borderland Auto Supply Company .... El Paso  
Electric Appliance Company of Dallas .... Dallas  
Hardwicke-Etter Company .... Sherman  
Herrick Hardware Company .... Waco  
Meyer Company, Jos. F. .... Houston  
McLendon Hardware Company .... Waco  
Morrow Company, Wm. L. .... San Antonio  
Stadler Auto Supply Company .... Houston  
Strauss-Frank Company .... San Antonio  
Turner Auto Supply Co. .... Texarkana  
Wilson Hardware Co., E. L. .... Beaumont

## UTAH

Inter-Mountain Electric Company .... Salt Lake City  
Motor Mercantile Company .... Salt Lake City

## VIRGINIA

Benton-Bailey Co., Inc. .... Richmond  
Interstate Hardware Company .... Bristol  
Meadows-Price Company, Inc. .... Roanoke  
Owens-Merritt Co. .... Danville

## WASHINGTON

Ballou & Wright .... Seattle  
Chanslor & Lyon Company .... Spokane  
" " " " .... Tacoma

## WEST VIRGINIA

Flat Top Auto Supply Company .... Bluefield  
Hutchisson & Company, T. .... Wheeling  
Motor Car Supply Company .... Charleston  
Van Zandt-Leftwich Auto Supply Co. .... Huntington

## WISCONSIN

Andrae & Sons Company, Julius .... Milwaukee  
Clemons Auto Supply Company .... Eau Claire  
McGowan Company .... Madison  
Morley-Murphy Hardware Co. .... Green Bay  
Shadbolt & Boyd Iron Company .... Milwaukee

## DOMINION OF CANADA

Automobile Supply Co., The .... Winnipeg  
Hall Gear & Machine Co. .... Toronto  
Mackenzie, White & Dunsmuir, Ltd. .... Vancouver,  
B. C.

American Hammered  
Baltimore,

Piston Ring Company  
Maryland



# When Time Is Money—

## Here's Shop Equipment That Saves Them Both



**Model H.60**

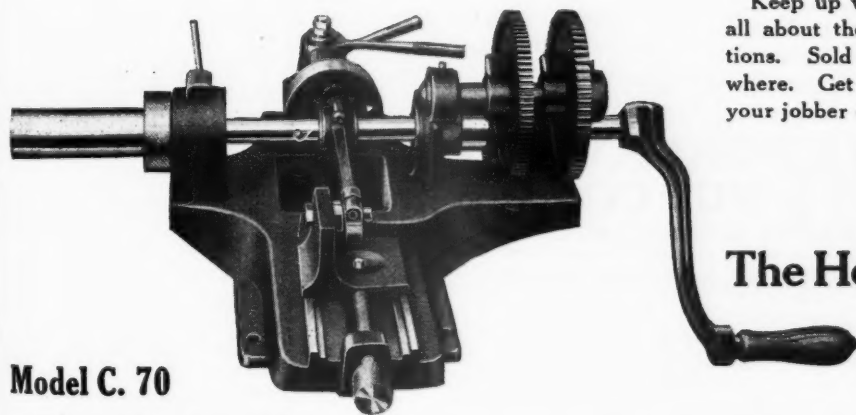
The machine above is the model H.60 Hempy-Cooper Universal Connecting Rod Babbitting Jig. Equipped with mandrel for casting an oil groove into bearings. Change parts from one type rod in less than 2 minutes. Water cooled. Price \$60.00.

Don't mark time on that rush job while another shop rebabbitts the connecting rods—and takes half your profits. Do the whole job yourself with Hempy-Cooper Connecting Rod Equipment. Consists of two machines that make new rods out of old ones at the rate that is certain to make you handsome profits. Lower your labor cost. Speed up your service. Greater satisfaction for your customers. Bigger profits for you.

One machine (Model H.60 Babbitting Jig) casts babbitt bearings into rods of makes of cars using "cast-in," "set-in" or "shell" bearings. The other machine (Model C.70) then bores and fillets the bearings. Accurate to a thousandth part of an inch. Both machines are practical, easily operated and very speedy.

### Call Your Jobber or Write Us

Keep up with the march of progress. Learn all about these two new money-making inventions. Sold through high class jobbers everywhere. Get full information, prices, etc., from your jobber or write today for our Free Catalog.



**Model C. 70**

This machine bores and fillets connecting rod bearings. Scientifically correct and accurate. Operated either by electric drill or hand power. Equipped with famous patented helix screw feed. Price \$160.00. This price includes a fine micrometer.

**The Hempy-Cooper Mfg. Co.**  
412 Archibald Ave.  
Kansas City, Mo.

# HEMPY-COOPER

## Rebabbitting Appliances



**The Story of  
the Empire  
New Process  
Bolt . . . . .**

Chapter 1. No. 3

## The Eccentric Behavior of Bolt Threads

**I**F bolts were three hundred times larger than they actually are, so that every detail of their construction was clearly visible to the naked eye, one question that's long been puzzling you would be answered.

You would discover the reason why bolts of the same make, size, and style, don't always *act* alike when the nut is turned down.

You would see that no two threads are cut the same—even when the same die cuts them from the same stock. If you went into the matter still further you would find that no two threads *can* be cut alike, except within broad tolerances; or on a lathe, where perhaps one or two bolts could be cut and ground in a day.

But bolts must be made by the tens of thousands, not singly—and when you try to *cut* their threads that fast, you run into trouble. So you find all kinds of fits in one lot of bolts; loose fits, tight fits, medium fits, and no fits at all.

### The Eye of the Comparator

Now, bolts *aren't* three hundred times larger than their specifications; but there is a very interesting machine that casts the *shadow* of the thread, very sharp and clear and many hundred times magnified, on a tolerance chart. This machine is called the Comparator. Here you get a story of accuracy, or lack of accuracy, that no ring gauge could ever give.

It is merciless in showing up the defects of the cut thread.

But recently a wonderful thing has taken place. A bolt—an ordinary, everyday, commonplace steel bolt—has been inserted in the Comparator, and behold, its thread comes within the same minute limitations as that of a hardened and ground gauge! The bolt is shaped, headed, and threaded in a few seconds. The gauge is turned on a lathe and finished in from eight to twelve hours. Yet the most accurate measuring device in the world can detect no difference between them.

### A Thread of Unbelievable Accuracy

What sorcery is this? No sorcery at all, but just another triumph of mechanical genius. The bolt is the Empire *New Process*, and its thread is made in a new way, *without cutting*.

A new type of die, produced on a machine tool of a hitherto unattainable precision, *builds up* the thread on a specially prepared blank. This is the thread that measures as close as a gauge on the Comparator. This is the thread that makes an end of misfits, stripping, and waste. This is the thread you will get when you order Empire *New Process* bolts.

The prices are no higher than for former Empire bolts. If you want samples for testing, just write.

**RUSSELL, BURDSALL & WARD**  
**BOLT & NUT COMPANY**

PORT CHESTER, N.Y.

FENNERBICK, CONN.

CHICAGO

SAN FRANCISCO

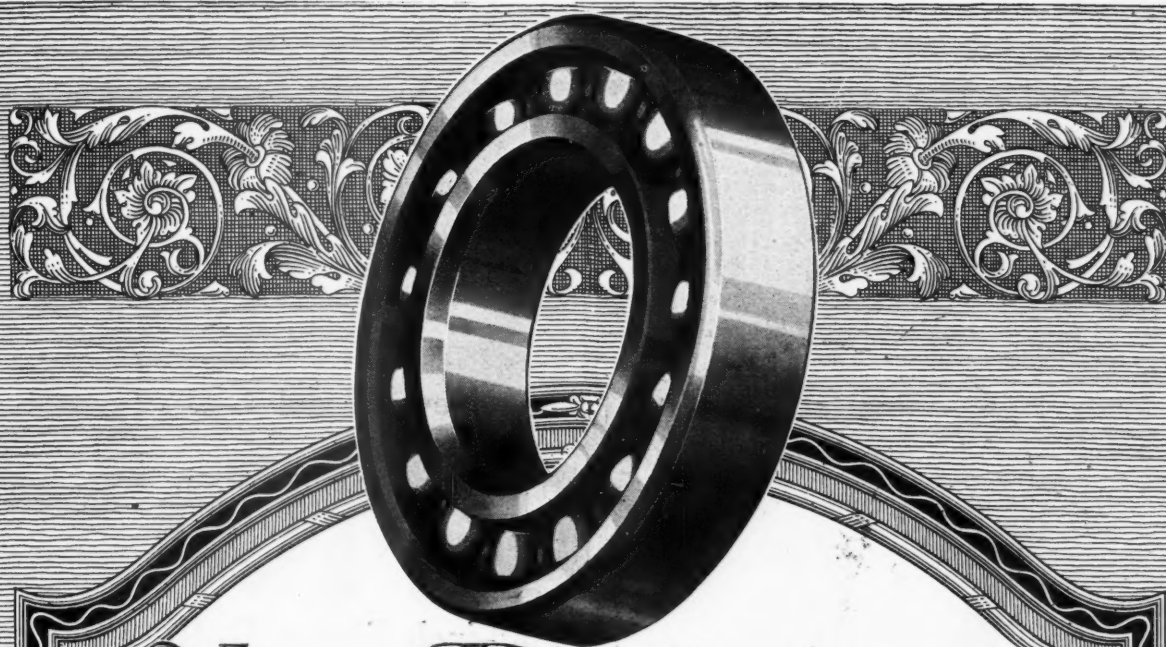
ROCK FALLS, ILL.

Makers of Bolts, Nuts and Rivets Since 1845



**EMPIRE**  
*New Process* **BOLTS**





# New Departure Ball Bearings

**SO WELL** thought of that one  
truck maker guarantees them  
*for truck life*, on one of the hard-  
est bearing jobs in the whole  
chassis—the crankshaft.





The New Model G-D

**TEMCO**

Half-Inch Garage Drill

**\$56<sup>00</sup>** Complete

**With the Super-Powered Motor that Never Runs Hot!**

—and Look at  
these New Low  
Prices on

**TEMCO**

**Heavy Duty  
Drills**

Model "K"  $\frac{1}{2}$ ", \$68.00

Model "N"  $\frac{5}{8}$ ", 72.00

Model "T"  $\frac{7}{8}$ ", 88.00

Put 'em against any-  
thing and go ahead.

"They stand the  
Gaff."

### *Setting the Pace!*

This New Super-Motored TEMCO Drill Has More  
Power Than Any Other Drill of Its Size

The heart of a drill is the motor, for power means performance. Temco engineers have recently perfected a Super-Motor which makes the Temco a Super-Drill. The tremendous power developed by this new motor makes tough jobs easy and surpasses the performance of any other drill of the same size.

#### *The Most Drill for the Money*

The designing of this new ball-bearing, fan-cooled Super-Motor has been accomplished without adding an ounce to the weight or interfering with the perfect balance which characterizes every Temco drill. Neither does this extra power cost you a penny more. Ball-bearings throughout with a ball thrust bearing, eliminate friction. Wide-faced, deep-meshed gears of hardest steel assure steady performance on toughest jobs. And the motor never runs hot.

Designed especially for garage and repair shop work, this Model "G-D" does all kinds of drilling in the toughest materials without a murmur. Especially adapted to lapping pistons, honing cylinders, grinding valves, attaching accessories, etc.

Get the facts about this Super-Drill from  
your jobber or write direct for full infor-  
mation giving your jobber's name.

**The Temco Electric Motor Co.**

704 Sugar St., Leipsic, Ohio

**A**



Mr. Average Citizen of Your-town. Belongs to two lodges, has a '23 bus and is a prospect for a Rose pump for easy pumping insurance. The Rose suits his taste and his pocketbook.

**The ROSE  
TIRE PUMP**  
1 1/4" - \$2.50 1 1/2" - \$3.00

**A**



De Luxe Customer, whose new car is equipped with balloon tires. The Rose Balloon Tire Pump fills them in record time because it has a greater capacity per stroke. "It's a wonder," he says—and means it.

**The ROSE  
Balloon**  
\$3.50

**A**



Will Spenda Dollar. One buck is his limit for a tire pump. So he buys the Daisy — a REAL pump, with smooth, easy strokes and perfect compression. See him smile!

**The DAISY**  
\$1.00

## Three Aces Take the Pot!

Three leaders in the low, medium and special price classes of tire pumps are getting the cream of pump profits for dealers.

Rose makes them. A top-notch pump for every pocketbook, from America's leading tire pump manufacturer. The Rose for the bulk of your sales. The Daisy for your dollar trade and the Rose Balloon Tire Pump for your balloon tire owners. Hold your stock to these pumps and reap more profits from a smaller investment.

These three aces win! Any jobber will deal them to you.

FRANK ROSE MFG. CO., Hastings, Nebr.

# ROSE

## Tire Pumps







This trade mark and the full name, Robert Bosch, are always inscribed on every piece of ORIGINAL BOSCH automotive equipment. Look for these identifications. They are your guaranty of ORIGINAL BOSCH quality as known the world over since 1887.

## All over the country~ the *Original* Bosch Horn is being chosen by the owners of fine motor cars

### WARNING

Horns of which the sound producing mechanism is essentially that of the ORIGINAL BOSCH Horn are being offered to the trade by various manufacturers. The selling or using of such imitations constitutes infringements of the patent by which the Bosch Horn is protected. Infringers will be held strictly accountable.

On broad, smooth boulevards; in the traffic-tangled streets of cities; along far-flung country roads—wherever fine motor cars are driven—you will hear the musical, penetrating tone of the ORIGINAL BOSCH Horn. An efficient—and courteous—warning signal.

Naturally, being an ORIGINAL BOSCH product and, therefore, of unquestioned worth and accuracy, this new, high-frequency warning signal is being profitably handled by many of the country's best automotive dealers.

To such of these merchants who have not already stocked the ORIGINAL BOSCH Horn the invitation to become selling agents is extended. Write for full information to Robert Bosch Magneto Co., Inc., 109 West 64th Street, New York, N. Y. Chicago branch, 1302 South Wabash Avenue.

#### LIST PRICES

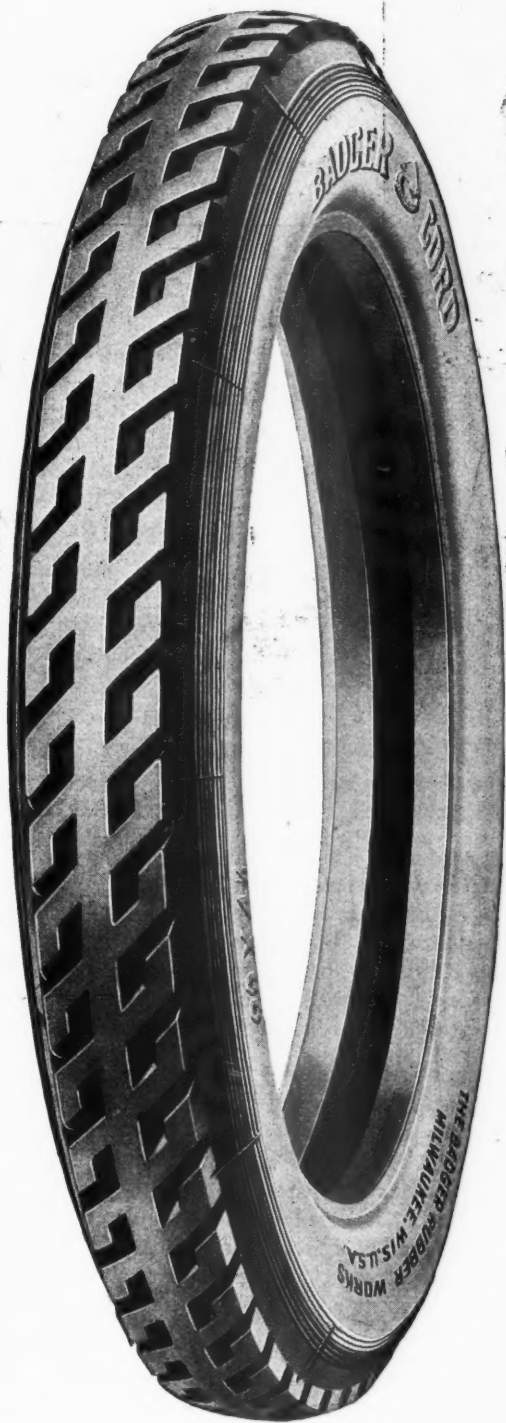
"Junior" for motorcycles.....	\$16
"Standard", for passenger cars.....	\$21
"Master" for large cars, motor busses and motor boats.....	\$25

When ordering your stock of ORIGINAL BOSCH Horns, please be sure to specify the model or models desired, and the voltage.

# The Original Bosch

ROBERT · BOSCH · MAGNETO · COMPANY · INC.

# BADGER TIRES



A line offering unusual opportunity for building a bigger and better tire business.

Through exceptional quality, and unusual service rendered, its distribution and prestige is national in scope.

Representative Jobbers everywhere recognize its merits, and recommend it to their Dealer Trade.

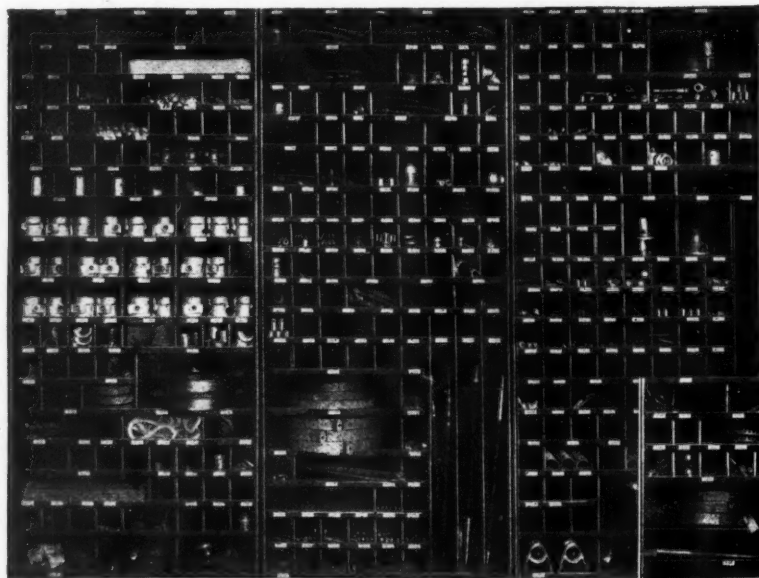
In short, it is a most complete, competitive, permanent and profitable line.

Dealers supplied exclusively through the Jobbing trade.

**THE BADGER RUBBER WORKS**

MILWAUKEE, WISCONSIN





A MAXWELL 3-Unit Laps System

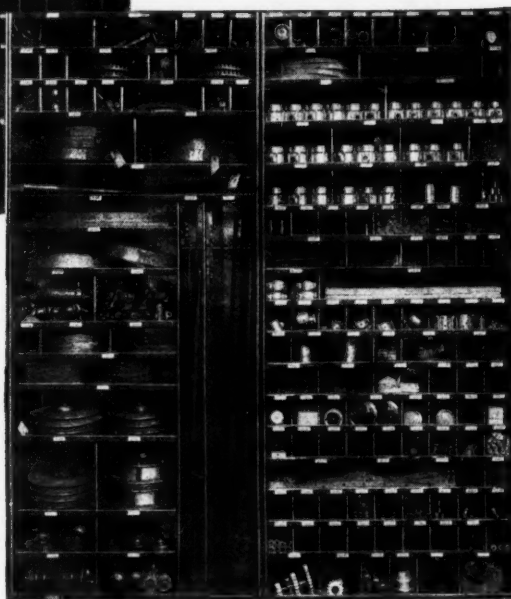
## LAPS

### Keeps Pace with the Industry

WITH radically new features in Chrysler construction, it has become necessary for the Chrysler dealer to carry a specialized stock of replacement parts. The Chrysler factory, being in a better position than the dealer to estimate his replacement requirements, has compiled three well-balanced lists of needed parts based on the number of cars serviced.

For each of these lists a special LAPS (Lupton Auto Parts Storage) System has been built by Lupton in co-operation with the Chrysler Service Department.

LAPS Systems not only simplify inventory and insure against investment losses from dead stock but speed up service in keeping parts readily accessible in assembly units and furnishing an instant check on stock at hand. In addition to all this, LAPS Chrysler Systems increase parts sales by display—by advertising the dealer's sure-fire, rapid service to his car-owners and prospects.



A CHRYSLER 2-Unit Laps System

The Maxwell Service Department has also co-operated in solving the dealer's problem of selecting replacement parts. Realizing that their dealers can develop a profitable parts business only through efficient service, Maxwell has compiled lists of recommended stocks for servicing 50, 100, 250, and 500 cars.

For storing and displaying the replacements included in these lists, the Maxwell Service Parts Department recommends LAPS, the all-steel auto parts storage systems built by Lupton. These attractive, permanent units store Maxwell parts the way they should be stored; that is, arranged so that the related parts of each unit assembly are together, regardless of shape or size. A bin is provided for the proper quantity of each part, large or small, according to the average demand.

A LAPS System is one of the greatest assets a Maxwell dealer can have, because LAPS saves him time and money and increases his sales of parts and cars.

*Write your jobber for prices*

# DAVID LUPTON'S SONS COMPANY

Main Office and Factory

2247 E. Allegheny Ave., PHILADELPHIA

Sales Office

2631 Woodward Ave., DETROIT

"there's money  
in that"

"I'll try that  
myself"

"that's  
us!"

"that's  
an  
idea"

"great!"

"hm-m-m"

## a book you'll want ~ free!

ONCE a month Johns-Manville issues a large handful of ideas to garagemen and dealers, between the covers of the "Hand Out." You will find many stories of success and short-cuts to profit in this publication whether your job is at the bench or in the office.

It is free to mechanics, garagemen and dealers.

### JOHNS-MANVILLE

292 Madison Ave. at 41st St., New York City  
Branches in 62 Large Cities

For Canada:  
Canadian Johns-Manville Co., Ltd.  
Toronto



This coupon will  
bring you the  
"Hand Out"  
every  
month

JOHNS-  
MANVILLE  
INC.

292 Madison Avenue  
N. Y. C.

Please send me once a  
month your new publication the  
"Hand Out".

Name \_\_\_\_\_

Address \_\_\_\_\_

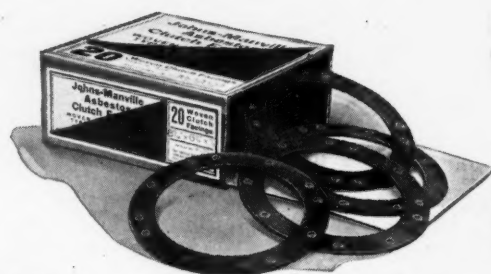




Good tape like good honey is sticky. That's Johns-Manville Automobile Tape—sticky always. It is strong and will not fray. We guarantee it for one year.



Johns-Manville Seigelite Sheet Packing resists the action of oil, water, gasoline, through years of usefulness. Especially recommended for gasketing water manifolds, differential housings, carburetors, etc.



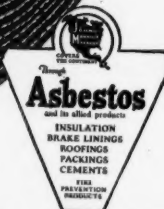
What a grip! Johns-Manville Clutch Facings fit disc clutches of all standard American cars. Order from your distributors' stock when needed.



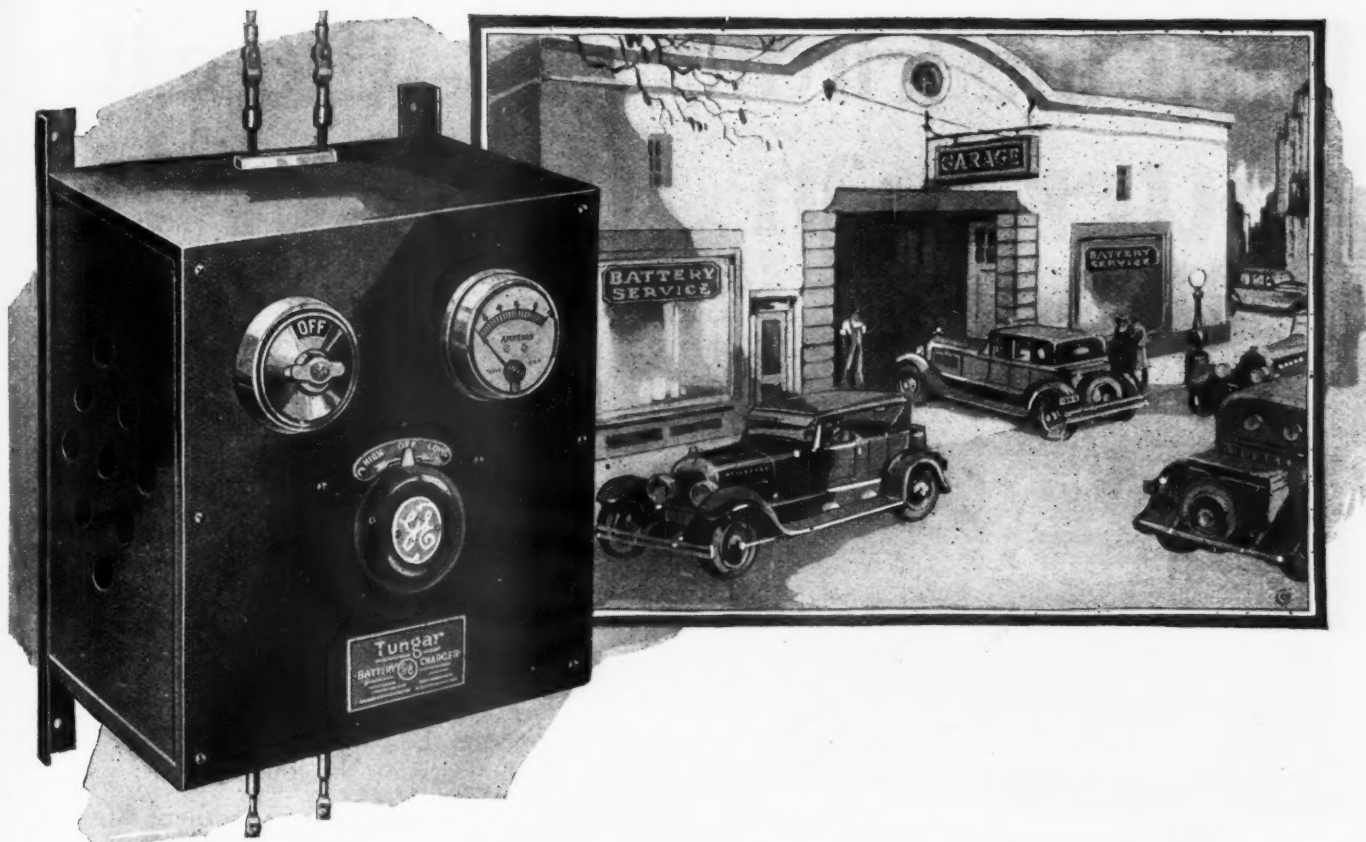
The hero of 12,000,000 explosions! Gasketing a cylinder head for a couple of years is all a part of the job which Johns-Manville Service Sheet Packing does so well.



Curbing 25 horse-power! That's the every-other-minute performance of Johns-Manville Asbestos Brake Lining in stopping the average car in traffic. Brakes are safer and last longer with this dependable lining.



**JOHNS-MANVILLE**  
Asbestos Brake Lining,  
Clutch Facings, Packings,  
etc.



## Bring in more business

For the garage, the auto service station, the car dealer—a Tungar means added profits. It means complete service right on the premises. And it means extra income from a small unused bit of wall space.

For the service station, a Tungar means low first cost, low running cost, twenty-four hour service. A Tungar works safely all night, with no attention. It is the *original* bulb charger that made battery charging profitable.



Write for the booklet that shows the profit possibilities of the Tungar.

HEAVY DUTY  
**Tungar**  
REG. U.S. PAT. OFF.  
**BATTERY CHARGER**

*Tungar—a registered trademark—is found only on the genuine. Look for it on the name plate.*

MERCHANDISE DIVISION

# GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY

MERCHANDISE DIVISION

BRIDGEPORT, CONNECTICUT



# What the Trirdyn gets where it's hotter than Summer!



Crosley Trirdyn—on the Sahara Desert at mid-day—brings in Radio-Paris on the loud-speaker!

Not only at mid-day, but in February—in Northern Africa and far hotter than any American summer.

The picture above, a post card snap shot sent from Tunis to Mr. Crosley, by D.F. Keith of Toronto, Ont., tells this story on the other side:—

Tunis, North Africa, March 3, 1925

Dear Mr. Crosley:

Fishing here is rotten but radio is fine. On the Sahara, using three tubes on the Trirdyn circuit, reception from Paris came through on the loud-speaker. Along the south coast of the Mediterranean, using this set, six or eight high power European stations came in with good volume by day-light and all of them after dark. Can usually get a few American after 1 a.m. Can you fish with us this year?

Cordially,  
(Signed) D. F. Keith

Further details on the margins of the picture:—

Sahara Desert, 250 miles south of Algiers, February, 1925. Receiving noon-day concert from "Radio-Paris", Paris, using aerial and counterpoise.

Dealers who are interested in *summer sales* will order Crosleys at once from their jobbers.

On the Trirdyn is the beautiful new Crosley Musicone, radio's most startling development. The Musicone's abilities and its beauty are so superior that we expect it to replace half a million loud-speakers this year. \$17.50.

The Crosley Radio Corporation  
4533 Sassafras St., Cincinnati  
Powel Crosley, Jr., President

**CROSLEY**  
**RADIO**  
*Better—Costs Less*



features that sell  
the new Chevrolet

# VALUE

—a highly important attribute of Chevrolet, resulting from faithful, persistent striving toward one ideal—the building of fine quality cars to sell at low cost.

Better looking, better built and better finished than ever before, this car is giving Chevrolet dealers new selling opportunities that add materially to the value of their franchise.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN  
DIVISION OF GENERAL MOTORS CORPORATION

*for Economical Transportation*



Quality at Low Cost



# SHAFER

**Self-Aligning ROLLER BEARING**

PAT. & PATS. PENDING



**L. S. HARRIS MOTOR CO.**  
CORNER BROAD & LAMAR STS.  
KNOXVILLE, TENN.



Shafer Bearing Co., Feb. 18th, 1925.  
Chicago, Ill.

Speaking of bearing records, we have been selling the Maxwell in this territory for the past fifteen months. This car is equipped with Shafer bearings, and we have not replaced a single bearing up to the present date.

We feel that this record speaks for itself, when considering the large number of Maxwell cars in our territory.

Yours truly,

L. S. HARRIS MOTOR CO.,

BY *J. E. Vann*  
Mgr., Parts Dept.

JEV/h

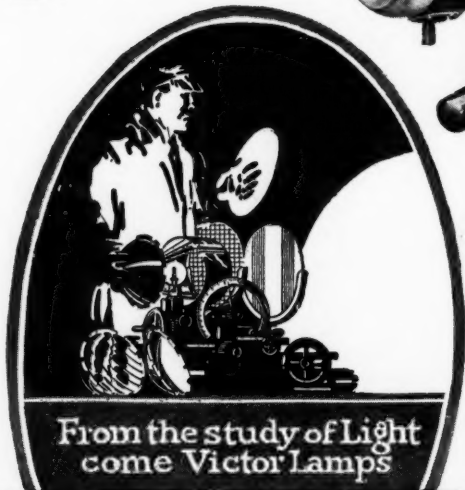
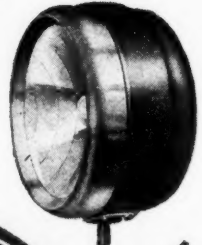
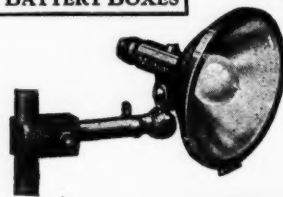
**SHAHER BEARING CORPORATION**  
6501 WEST GRAND AVENUE  
CHICAGO, ILL.

## Out of Stock is Out of Pocket— Check Your Victor Items TODAY

The big selling reason for replacement lamps is here. Getting your share of this spring business depends a whole lot on being prepared. Your jobber is ready, are you?



HEADLAMPS
BROWN—UNIVERSAL REFLECTORS
SPOT LAMPS
PARKING LAMPS
COWL LAMPS
DASH LAMPS
STOP LAMPS
SWITCHES
TOOL BOXES
BATTERY BOXES



From the study of Light  
come Victor Lamps

**The Victor Line**

THE CINCINNATI VICTOR CO.  
716 READING ROAD  
CINCINNATI, OHIO

"A Lamp for Every Automotive Need"

# WATERVLiet

## Spiral Expansion Hand



**Special Set No. 12E**  
*Fully Guaranteed*

# REAMERS

Here's a big help for service stations and garages. A set of 12 perfect-performance reamers that'll speed up piston pin work on over 90% of all cars and many trucks. Complete in a sturdy oak case that protects them from damage or loss. Spiral flutes that cut clean, with a shearing motion. Accurate expansion. Give a full bearing surface with a mirror-like finish.

### *They Will Not Chatter*

*Ask Your Jobber or Write for Literature*

All reamers need occasional resharpener. We'll be glad to sharpen your Watervlit for a service fee of \$1.00.

## WATERVLiet TOOL CO., INC.

1037 Broadway

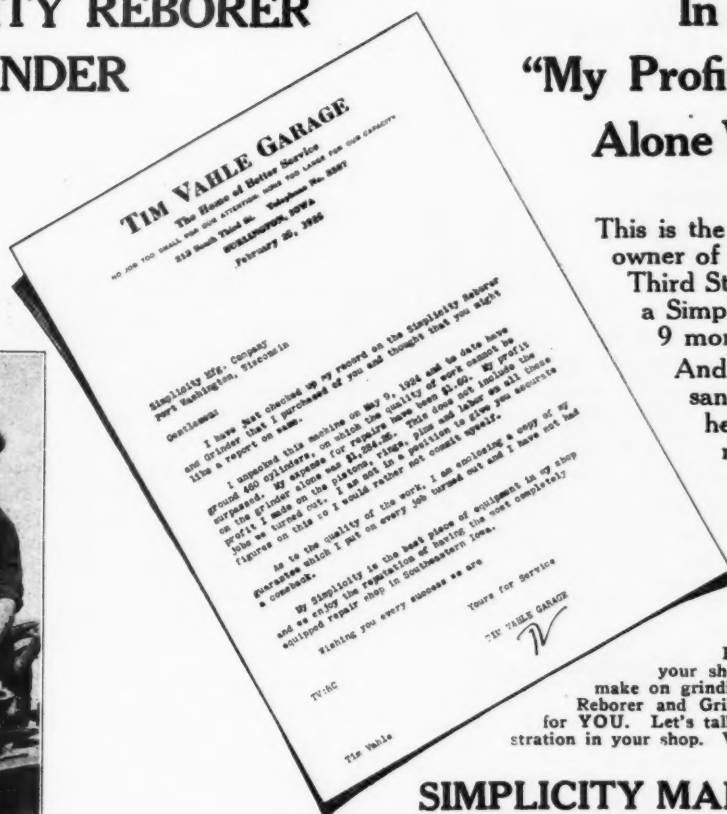
Albany, N. Y.

1780 Broadway, New York

711 Mutual Bldg., Kansas City

661 Turk St., San Francisco

## SIMPLICITY REBORER AND GRINDER



### In 9 Months

**"My Profit on the Grinder  
Alone Was \$1,284.25"**

This is the report sent us by Tim Vahle, owner of the Tim Vahle Garage, 213 S. Third St., Burlington, Iowa, after using a Simplicity Reborer and Grinder for 9 months in his shop.

And these profits of over a thousand dollars did not include what he made in addition, on pistons, rings, pins and labor, with—

**Every Job  
Guaranteed**

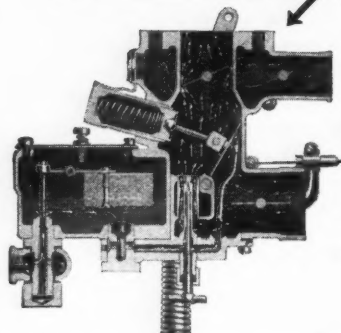
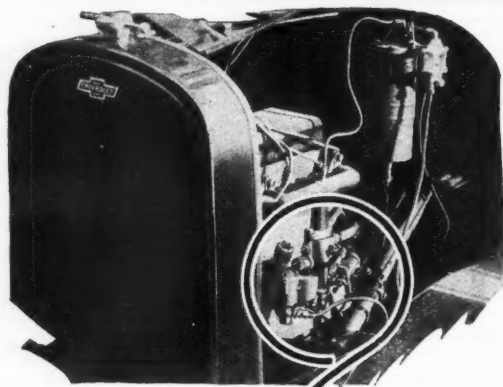
Read Tim's letter again, and look around your shop. How about the profits YOU might make on grinding this year? Perhaps a SIMPLICITY Reborer and Grinder could pick up a thousand or more for YOU. Let's talk it over, and arrange for a free demonstration in your shop. WRITE OR WIRE US TODAY.

## SIMPLICITY MANUFACTURING CO.

110 Spring St.

Port Washington, Wis.





Price  
**\$18.00**  
Slightly  
higher on  
West Coast

Notice the Exhaust Gas Heat Inlet Opening and Damper or Door within same. As the Throttle Valve closes, the Heat Damper opens automatically, thus providing the important feature of Automatic Heat Control.

Marvel is Standard Equipment on Buick (for 12 years) and on NASH (for 7 years).

## NEW MARVEL CARBURETER for CHEVROLETS

Trouble in starting a cold engine, backfire and spitting of a motor, and refusal to throttle low and idle smoothly, are usually caused by a long intake manifold, the mixture chilling before it enters the explosion chamber.

Installation of a Marvel on the Chevrolet raises the carbureter about EIGHT INCHES, thus keeping the mixture warmed until it enters the cylinders.

Marvel is the ONLY carbureter which secures perfect VAPORIZATION of Gasoline by surrounding the Mixing Chamber with HEAT—Heat automatically controlled by the throttle.

These two features make Marvel the ideal carbureter for every Chevrolet. It will eliminate starting and idling troubles and greatly increase the power, flexibility and economy of the Chevrolet motor.

The new Marvel model for Chevrolets is the first step in a new program of one of the oldest, best-established carbureter manufacturers in the automotive field. Other models for popular cars will be announced in the next few weeks.

A new model just ready for the new 1925 Chevrolet with short manifold that gives wonderful results.

Special Ford and Studebaker models now ready:

Ford, \$18.00                      Studebaker, \$28.00  
(Slightly higher on West Coast)

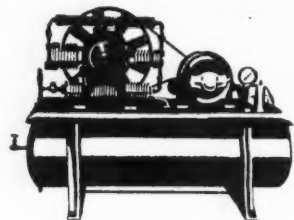
Every Accessory Dealer and Service Station will be interested in this field for new business—profitable business. Write today for the Marvel booklet of carburetion facts, "Exhaust Gas Put to Work," and for details of our attractive dealer and distributor proposition.

### MARVEL CARBURETER COMPANY

1100 St. John's Street

Flint, Michigan

## SKIMP? No, Never!



We could save a few dimes here, and shave a few dollars off the cost there . . . if we wanted to. You wouldn't know it, at least for several years. As a matter of fact, we don't and won't do it. We do not skimp a job. We build the best compressor we know how to build, and we do the job well. Our products meet the demands of modern business. They stand up and give service. They are up-to-date in design. They give satisfaction and they give it permanently. Our business is increasing. If you want to stock and sell our line, write to us.

### Quincy Compressor Company

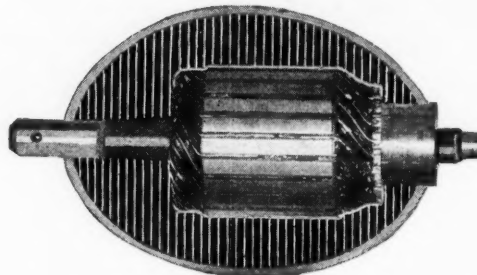
Name formerly Wall Pump and Compressor Co.

217 Maine St.,

Quincy, Ill., U. S. A.



## Enormous Price Reductions on Highest Quality Armature Winding



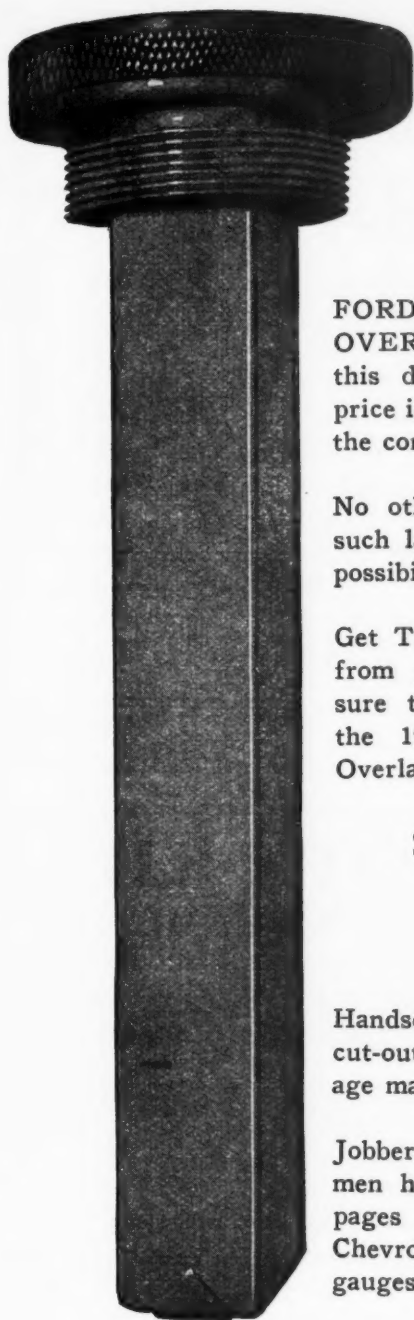
We make these reductions due to the huge volume of business which we are getting from dealers all over the country.

FORD Generator Armatures Rewound . . . . . \$1.50 ea.  
FORD Starter Armatures Rewound . . . . . 1.50 ea.  
ALL OTHER TYPES TWO UNIT Generator  
Armatures Rewound . . . . . 3.25 ea.  
ALL OTHER TYPES TWO-UNIT Starter  
Armatures Rewound . . . . . 3.25 ea.  
ALL TYPES MOTOR GENERATOR Arma-  
tures Rewound . . . . . 8.00 ea.

GUARANTEED to give the same  
satisfaction as new armatures.

**H.M. FREDERICKS CO.**  
*Armature Winding Specialists*  
Lock Haven                      Penna.

# A Big Market and Low Price Mean Quick Sales



FORD, CHEVROLET and OVERLAND owners buy this device on sight—the price is so low compared to the convenience it gives.

No other accessory offers such large sales and profit possibilities to the dealer.

Get TASCO gauges today from your jobber and be sure to include some for the 1925 Chevrolets and Overlands.

Sells quick at  
**\$1.25**  
Retail

Handsome display card and cut-out in each dozen package make sales easy.

Jobbers be sure your salesmen have new price book pages and include 1925 Chevrolet and Overland gauges in their orders.

**THE AKRON SELLE COMPANY**

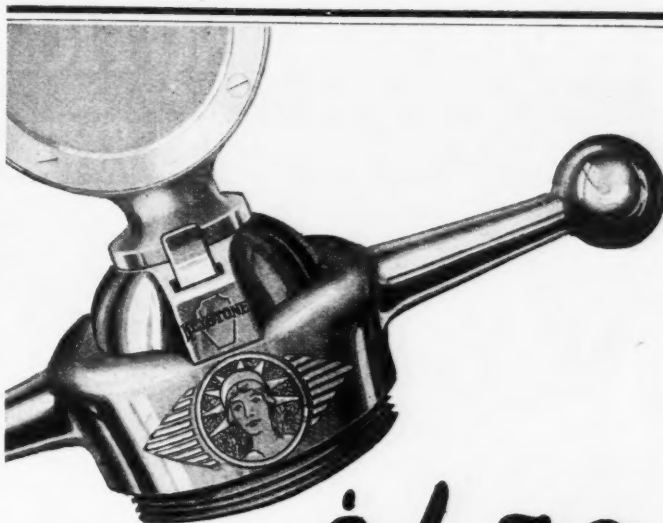
*"40 Years in Business"*

AKRON, OHIO



*More People Use TASCO Gauges—  
than any other kind. Look for this Dial*

**FORDS, CHEVROLETS and OVERLANDS**



*An  
Amazing  
Value*

**\$4.50**

*The new  
Keystone  
Senior*

*AND* therein you have a *real* appeal to Mr. Car Owner.

Here is the popular bar type ball end cap at a price that means quantity sales and—*more profits!*

Keystone Senior has—of course—the time proven and accepted mechanical features that have made "Keystone" a standard brand of merit.

Keystone Junior—for the smaller car—is offered at a price in proportion. Have you seen the new *Keystone Eagle* and *Eaglet*—the most beautiful caps on the market?

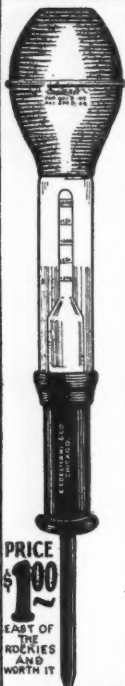
Ask your distributor—or write us.

**THE NORLIPP COMPANY**  
568 W. Congress Street, Chicago

**KEYSTONE**  
**SELF-LOCKING**  
**RADIATOR CAP**



## IMPORTANT NOTICE Regarding HYDROMETER PATENTS



PRICE  
\$1.00  
EASY OF  
THE  
ROCKIES  
AND  
WORTH IT

### TO THE TRADE

On January 15, 1925, a decree was entered in the United States District Court of Chicago, an excerpt of which follows:—"That the defendants and said co-partnership, N & N Hydrometer Co., their agents and employees be and they are hereby perpetually enjoined from making, using, selling or offering for sale, any device in infringement of any of the claims of said United States Letters Patent No. 1,245,449."

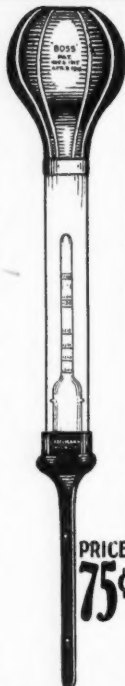
Previously a similar decree had been entered in the Federal Court of Philadelphia against another infringer. Our well known line of hydrometers are made under the Edelmann patent No. 1,245,449 and Freas patent No. 1,262,478. We shall continue to protect our patent properties by proceeding against infringers.

We trust that jobbers and dealers, as well as users, will co-operate with us in protecting our legal rights by refraining from selling or using hydrometers infringing our patents.

*E. Edelmann & Co.*

2332 LOGAN BOUL.  
CHICAGO, ILL.

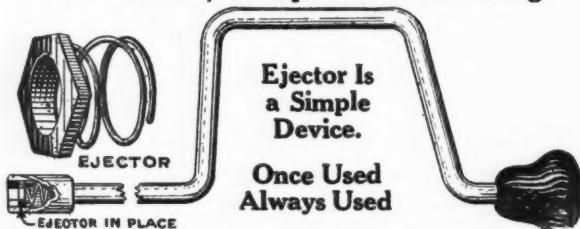
"Break-Not"  
STORAGE BATTERY  
TESTER



PRICE  
75¢

The "Boss"  
BATTERY HYDROMETER  
SYRINGE

### A TIME AND DISPOSITION SAVER Saves Time, Temper and Tinkering

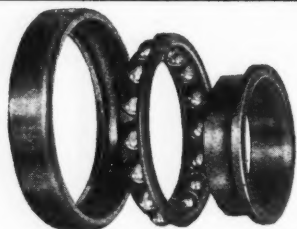


Ejector Is  
a Simple  
Device.

Once Used  
Always Used

Automatically expels nut from any Socket Wrench. No more slamming to get nut out of socket. Helps starting as it holds nut near top of wrench. Sold in set of five sizes, 1/4, 5/16, 3/8, 7/16, and 1/2 inch. Once introduced, will sell itself. Write to-day for distributing rights.

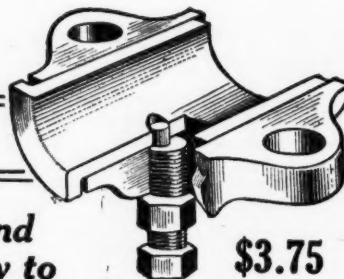
M. & F. MANUFACTURING CO.  
1421 24th Avenue, Oakland, California



The Bearings Company of America—Manufacturers of Angular Contact Radial Bearings, Angular Contact Thrust Bearings, Thrust Ball Bearings. Bearings made to your B/P's and requirements. Your present Bearing sizes duplicated.

The Bearings Company of America  
Lancaster, Penna.

Detroit, Mich., Office,  
1012 Ford Bldg.



A Sure and  
Easy Way to  
Stop or Prevent

\$3.75

## End-Play

Ford crankshaft end-play can now be remedied simply by dropping the oil pan and installing the C-A ADJUSTABLE BEARING. Formerly it meant removing motor, a troublesome procedure, and much time spent. C-A ADJUSTABLE BEARING replaces center main bearing cap and assumes half of thrust, delaying development of end-play. Adjustable feature permits easy, simple correction. Eliminates dragging clutch, worn wrist pins, scored cylinders, chattering bands, magneto out of line and many other evils of end-play.

Jobbers, dealers: Write today for full information.



ADJUSTABLE CENTER  
BEARING CAP

Adjustable Bearing  
Company, Inc.  
Dept. 401  
BRAZIL, INDIANA

## SMOOTH-KUT EXPANSION REAMERS

FULL SPIRAL FLUTED FOR CLEAN CUTTING



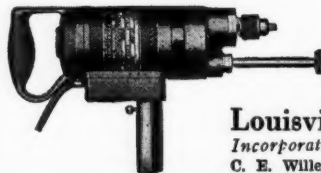
This is our Style "B" with a two inch pilot especially designed for automotive piston pin work. It will give a fine, clean surface in perfect alignment and without chatter. Allows a far greater range of expansion. Will outwear others.

We guarantee it, and regrind it at cost.  
Supplied in all decimal sizes. Order through Jobber.  
Beware of inferior imitations.

Millersburg Reamer & Tool Co., Millersburg, Pa.

## Get This "Pioneer" \$65 Garage Special

Electric Drill  
and Valve Grinder

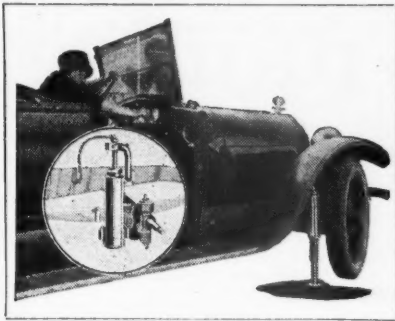


Greatest time and money saver,  
as well as money maker, for  
your shop—

"It Will Do The Work"

Louisville Electric Mfg. Co.  
Incorporated  
C. E. Willey, Pres. J. B. McFerran, Secy.-Treas.

TWO  
IN  
ONE



TWO  
IN  
ONE

## PAUL

### Hydraulic Jack and Shock Absorber (PATENTED)

Will raise any or all wheels.

Operates from the drivers seat.

Perfect shock absorber.

Durable—Simple—Not Expensive.

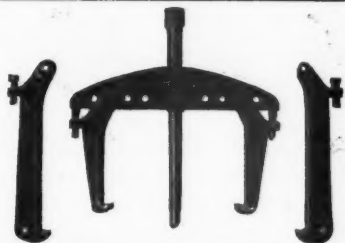
ATTRACTIVE PROFITS TO BE MADE  
BY DISTRIBUTORS AND DEALERS

*Write for Dealers Proposition.*

**The Paul Company**

Duluth

Minn.



### There's a Crane Puller for Every Pulling Job in Your Shop

Every Automotive shop, whether it be a garage, service station or independent repair shop, has use for at least two Crane Pullers.

There's a No. 0 Puller for light work on generators; pump and shaft gears, steering wheels, magneto repair jobs, etc.

No. 2 takes care of rear wheels and all pullings on transmissions, universal joints, differentials on Dodge and Ford and other moderately light cars.

They are absolutely guaranteed.

At your dealer's or write for dealer's name who has them.

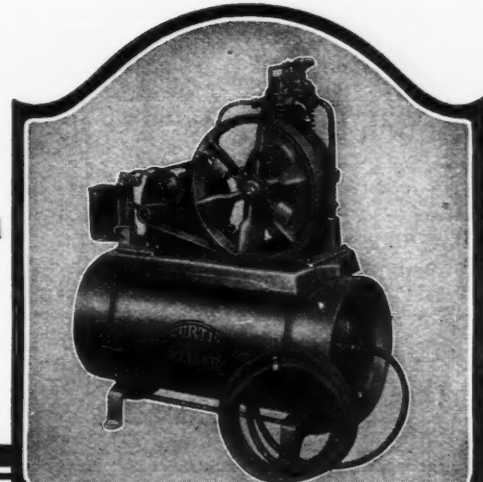
**CRANE PULLER COMPANY**

South Deerfield

Massachusetts



An  
Original  
Design



Curtis Style "V"  
Two Stage Outfit  
Sizes three fourths  
to 2 h.p. Automatic  
Starter.

## Stability—Progress

*Backed by 71 Years' Experience*

Every Curtis Compressor Outfit and Air Stand has a background of stability measured by 71 years of progressive manufacturing experience.

The last 28 years of this long period have been devoted to the design and perfection of Curtis Air Compressors—so that today every buyer of Curtis equipment can be certain of these two vital facts:—(1) He is buying a thoroughly reliable product that has long been recognized as the standard of excellence and (2) he is dealing with an institution of known integrity and stability whose product is not likely to become an "orphan."

### Superior Curtis Compressor Features

Controlled splash oiling system enables compressor to run longer on same amount of oil. Fan flywheel helps cool cylinders and increases efficiency. Valves light, large, inspectable. Heads removable without loosening pipe connections. Hand unloader (or centrifugal on automatic outfits) permits starting unloaded against full tank pressure. No spitting of oil when the Curtis Automatic cuts out. Curtis two-stage has copper inter-cooler, the most efficient metal for this purpose. Many other features.

**CURTIS AIR AND WATER STAND**—Made either column or low type, free from all complicated parts, automatic valves and the like which quickly get out of order. Present many exclusive features.

**CURTIS PNEUMATIC MACHINERY CO.**  
1527 Kienlen Ave. St. Louis, U. S. A.  
Branch Office: 530-HHudson Terminal, New York City



# CURTIS

1854 ANNIVERSARY 1925

Mail this Coupon

**CURTIS PNEUMATIC MACHINERY CO.**  
1527 KIENLEN AVE. ST. LOUIS, MO.

Gentlemen:— Please send me full details on ☐ Curtis Air Compressors ☐ Curtis Air Stands, your proposition and prices.

Name.....

Address.....

Jobber's Name.....

Address.....



**JOHNSON**  
**Bench Furnaces**



For  
Soldering,  
Metal Melting,  
Heat-treating.

No. 101  
Bench  
Furnace

Fitted with the Powerful Johnson  
Atmospheric Burners, which produce the highest flame temperature  
**WITHOUT A FORCED AIR BLAST**  
Write for our new descriptive booklet.


**JOHNSON GAS APPLIANCE CO.**  
Cedar Rapids IOWA

 **UNITED STATES**  
**Portable Electric**  
**DRILLS**

Ask for  
Catalog 185

**THE UNITED STATES ELECTRICAL TOOL CO.**  
Cincinnati, Ohio, U. S. A.


Built by the old-  
est maker of  
Portable Electric  
Drills in the  
World.

 **Armatures Rewound**

Prompt Service

Low Prices. Ford Generator  
or Starter rewound, \$1.60.

Warren J. Bauman Co.  
Lock Haven, Pa.



Work  
Guaranteed

*Any Motor Will Run Better With A*  
**WINTERFRONT**  
TRADE MARK REG. U. S. PAT. OFF.

Splendid Profit, No Servicing

There is only one Winterfront. It is made by Pines.  
Distributors have stock for immediate delivery.  
Write factory for name.

Pines Winterfront Co., 412 N. Sacramento Blvd., Chicago.

**MONOGRAM**  
**ORIGINAL**  
**SELF LOCKING RADIATOR CAP**

**THE KINGSLEY-MILLER COMPANY**  
Successors to the General Automotive Corp..  
600 West Jackson Blvd., Chicago

**TIMKEN**  
**Tapered**  
**ROLLER BEARINGS**

**Nationally Advertised!**

Big plans for  
1925. The  
Gemco line is a  
winner.  
Write today.

GEMCO MFG.  
COMPANY  
760 S. Pierce St.  
Milwaukee, Wis.

Send for  
catalog



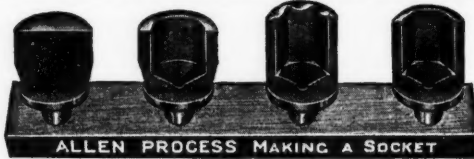
**Gemco**  
**BUMPERS**

**WEL-EVER**  
"OIL CONTROL" PISTON RINGS

The Motor Necessity That Has Made Good  
Backed by Seven Years' Satisfactory Service

**THE WEL-EVER PISTON RING CO., TOLEDO, OHIO**  
Sold most everywhere. If your dealer cannot supply you write us.

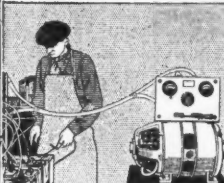
**Cold-  
Drawn  
Sockets**



**ALLEN**  
Wrench  
Sets

**ALLEN PROCESS MAKING A SOCKET**

**The Allen Manufacturing Company, Hartford, Conn.**

 **YOU CAN CLEAR \$150 to \$300 MONTHLY PROFITS**

Small cash payment brings you HB 8-hour battery  
charging outfit. Easy terms let your profits pay  
balance with nice surplus besides. Thirty day free  
trial on money-back guarantee lets you try HB  
outfit at our risk. Start now to make \$150 to \$300  
Monthly. Write today for information.

Box A 252 **HOBART BROS. CO.** Troy, Ohio

Profits Easily Carry Small Monthly Payments

**Free**  
write for  
your copy

**The Book**  
"AIR PROFITS"

Shows how to get  
more work out of  
an air compressor.  
How to use com-  
pressed air for  
many pay jobs.

**BRUNNER MFG. CO.**  
UTICA NEW YORK

**BRUNNER**  
AIR COMPRESSORS

**ZENITH** **More**  
**CARBURETOR** **Power**  
**Less**  
**Fuel**

**Zenith - Detroit Corporation, Detroit, Mich**

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**AN AUTOMOTIVE**  
**NECESSITY THAT SELLS**

**LORENTZEN HEADLIGHT KONTROL, INC.**  
60 Grand St. New York City



**Pedrick**  
**HEAT-SHAPED**  
**PISTON RINGS**

Heat shaped to in-  
sure perfect round-  
ness, sold at almost  
the price of a snap  
ring.

**Wilkens Mfg.**  
Company  
15th and Mt. Ver-  
non St., Philadel-  
phia, Pa.

25  
Uses  
On Every  
Car

**TENAX**  
**TANPAC** SHEET PACKING

The service man who is acquainted with the uses of TENAX and TANPAC Sheet Packing, knows where to go for the best results in the case of 25 points of necessary maintenance on every car.

Write us for complete information on these 25 ways to make money with TENAX and TANPAC.

**Advance Packing & Supply Co.**  
808 Washington Blvd., Chicago, Ill.

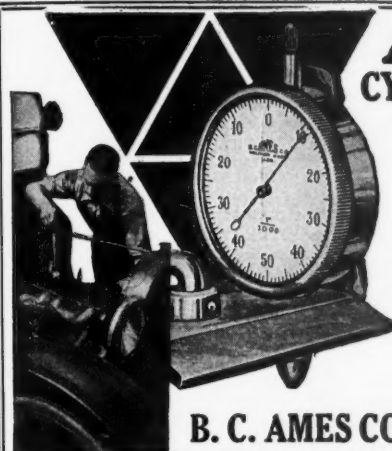
## TURN WASTED TIME INTO MONEY!

Every Purchaser Finds Numerous Uses for the **Torit Acetylene Torch No. 13**

Uses Acetylene Only. No oxygen or air pressure required; tips suck in air. Simply connect to Presto auto tank, light gas, and the outfit is put to work. Beats anything you ever tried for soldering, heating, melting or light brazing. Consists of 4 tips for different kinds of work, soldering copper, 5 ft. tubing, tank connection.



**ST. PAUL WELDING & MFG. CO.** 169 Third St., St. Paul, Minn.



## AMES Jr. CYLINDER GAUGE

With Setting Tool Handle

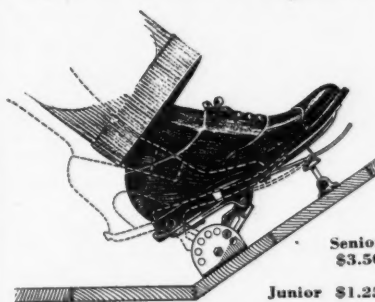
All the time saving facts in a glance at the dial

**Price \$17.50**

Buy from Your Jobber or Send for Folder

**B. C. AMES CO., Waltham, Mass.**

## The Adams Adjustable Foot Rest



Drive all day in comfort without foot-burn or leg strain. Protects shoes and floor-boards. Adjustable to all sized people and cars. Makes possible an even flow of gas over rough roads. Insulates from engine heat. Fits all cars having an accelerator. Substantially made of polished aluminum. Easily installed, no alteration or extra parts.

Senior \$3.50

Junior \$1.25

Ask your Jobber

**Adams Mfg. Co.**

Galesburg

Illinois

## In Every Issue of MOTOR AGE You Will Find These Features:

1. A clearing house to answer your questions.
2. A number of ideas that will help you make more money.
3. All the news of the automobile business while it is still news.
4. The advertising of the leaders of the automotive field.
5. Real automotive humor.

At less than 6c a copy—\$3.00 a Year—no live wire in the trade can afford to be without MOTOR AGE!

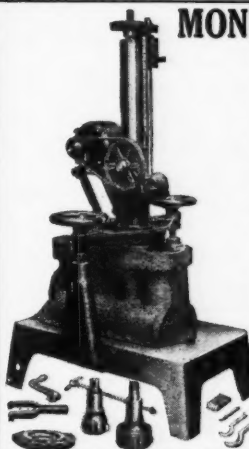


**DUVEX**—A thoroughly practical bumper, time-tested— at \$12.50 to \$16.00

Having attachments with each bumper, all carefully packed complete in one carton, costs us money but saves you time. That's New Era service.

**NEW ERA SPRING & SPECIALTY CO., GRAND RAPIDS, MICH.**

## MONEY MAKING MACHINES

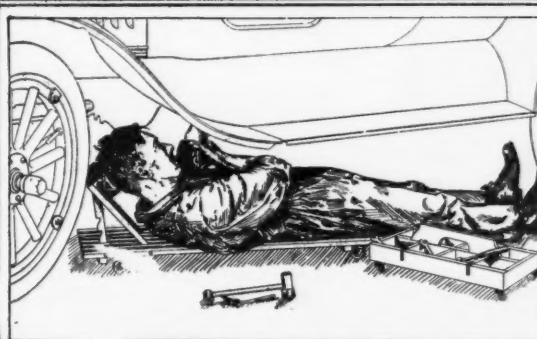


**STORMIZING** machines are truly money makers. They enable you to make biggest profits on every overhaul job. They handle all your cylinder renewing, accurately and efficiently, enabling you to turn out the high quality work that wins your customers' lasting approval. The automatic time and labor saving features make big profits possible by lowering operation costs.

Write for the Storm Book, "Modern Cylinder Methods"

**STORM MFG. CO.**

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## Koch Kreeper No. 3

Price, East of Rockies, \$4.00; West of Rockies, \$4.50; Postage Prepaid.

Patent adjustable padded headrest, easily operated. Long comfortable curved bed, finished in waterproof varnish. Equalled by none. If your jobber hasn't them, write us direct.

**THE FORT RECOVERY STIRRUP CO.**  
Fort Recovery, Ohio, U. S. A.





### SMOKELESS CARS DRY PLUGS

Guaranteed with  
**MEGSON RINGS**  
4 years' tested service  
Your jobber—at once  
or write direct

Megson Piston Ring Co.  
807-11 Flatbush Ave., Brooklyn, N. Y.

### Buick Continues Hall Endorsement

After using Hall Hones for over one year Buick test out the New Hall Hone and approve of it. It is the only Hone endorsed by Buick.

THE HALL MFG. COMPANY  
434 Dorr St., Toledo, Ohio



### Big money in this service

Dealers and shops make big money through the control of a franchise which entitles them to the exclusive use of the patented "KLEAN RITE" system of washing and polishing automobiles. This system has turned a job into an impressive, highly profitable business.

Write for full particulars

**Klean-Rite Auto Laundry Company**  
1710 East 75th St. Chicago, Ill.

### The SKINNER OIL RECTIFIER

More than a new accessory, a necessity. Makes one filling of oil good for 2500 miles or more. Prevents crankcase dilution. Prevents oil pumping. Improves lubrication, thus saving fuel.

Profit by the interest this device is creating among car owners. Write for complete details.

THE MASTERCRAFTS CORP.  
Brattleboro Vermont



### C. & G. WHEEL PULLER

**SPEEDY, POWERFUL, EFFICIENT**

One puller for over 100 cars. Built strong to stand up under every-day hard work in Service Stations. It is economy to buy the very best tools. Ask your jobber or write direct.

The C. & G. Wheel Puller Co., Inc.  
Wellsville, N. Y.

### BULL DOG Foot Accelerator for Fords

It sells everywhere. Fits all Fords and Carburetors for Fords. Easiest installation. Positive operation. Bull Dog Complete sells for \$1.50 with generous profit for dealers.

THE W. H. THOMAS MFG. CO.  
SPENCER, IOWA



FREE  
With 20  
Bull Dogs

### Pump and Tank Headquarters S. F. BOWSER & CO. Inc.

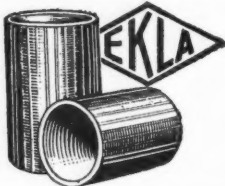
FORT WAYNE, IND.

### Jacobs ROAD-LITE

Lights the way to safety

Lights up the right hand side of road 60 to 70 feet ahead. Can't shine in other fellow's eyes. Invaluable for night driving.

Jacobs Auto Safety Lamp Co., Blacksburg, Va.



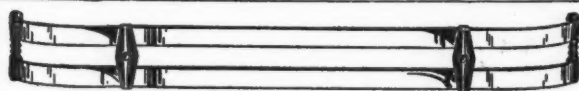
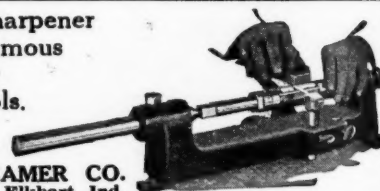
### EKLA All-Rubber Radiator Hose

—is tough and long-wearing—not easily damaged by heat, oil, vibration or radiator compounds. Sold in cut lengths for Fords and 3-foot lengths, all sizes with inch markings. EKLA prices allow unusual profits to the trade.

THE ECLAT RUBBER COMPANY  
Cuyahoga Falls, Ohio

The F-J Reamer Sharpener  
is only one of the famous  
F-J Family of Motor  
Re-Conditioning Tools.  
Write for Catalog.

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1334 Beardsley Ave., Elkhart, Ind.

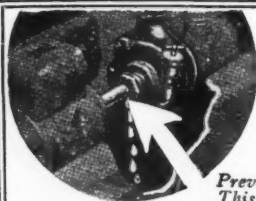


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Conneaut Plastic Metallic Packing makes a smooth metal bearing for pump shafts. Practically frictionless. Adjustable like a bearing. In one and 5 lb. cans. \$1.65 a pound. A really wonderful packing producing exceptional results.

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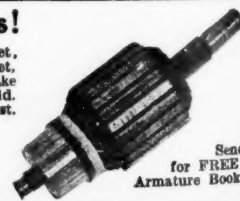
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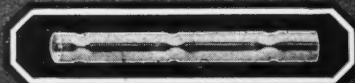
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Owned and Controlled by  
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Send  
for FREE  
Armature Book

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"REQUIRES  
ONLY  
HEAT"



SAMPLE  
FREE

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BRANCHES

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Always Accurate Theft-Proof

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## Huetter's Fly-Wheel Gear Bands

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## Rie Nie Bearing Blue

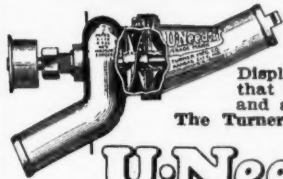
A marking compound used for determining high spots on bearing surfaces. Covers the surface completely, yet leaves a coat not more than one-thousandth of an inch in thickness.

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fit behind piston rings and keep them in perfect contact with the cylinder walls at any motor speed or temperature.

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Display this Rotary Pump. A pump that really pumps. Efficient at all speeds and all levels.  
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for FORDS

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The Kissel Dealer  
does not meet competition. He makes  
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Fan Belts and Radiator Hose

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The World's Largest Makers of Fan Belts

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Perfect Positive Protection

Filters all dust, sand and grit out of air supply to carburetor and motor. Write us for facts.  
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Formerly Member Examining Corps, United States Patent Office

American and foreign Patents secured. Searches made to determine patentability and validity. Patent suits conducted. Pamphlet of instruction sent upon request.

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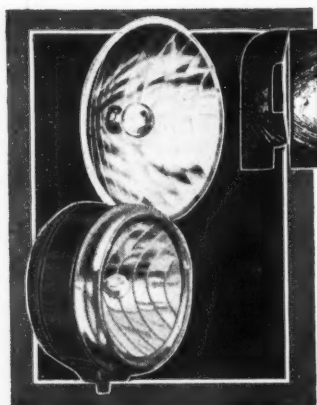


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BECAUSE it put all the light on the road where it belonged. The full, penetrating power of the bulbs kept below eye level by flatlite reflectors gives the driver daylight command of his car. Millions of enthusiastic users. FLATLITE reflectors with plain window glass lenses are legal everywhere. A selling plan of profitable interest to distributors and dealers will be sent on request.

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**REFLECTORS**  
*for replacement in any headlamp*  
**HEADLAMPS**  
*to fit all cars*

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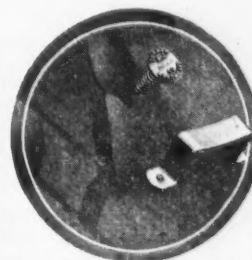
\$3.75

## Ignition that's best for Fords

The Turner 2 in 1 Timer is built on the conviction that a timing unit taking current from the Ford magneto is best for the Ford motor. With this in mind, the Turner Timer has been brought, through years of successful timer building, to its present superior position in its field. New features for 1925 include new all-steel rotor, longer wiring assembly for better installation and reinforcements at important points, but the price remains unchanged at \$3.75. The lowest priced, satisfactory ignition unit.

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Its direct connection with the carburetor and its unusually strong construction distinguish the Turner Instant Foot Accelerator from all others. Direct and positive in action. Does not interfere with hand throttle. Sturdy foot rest assures steady speed and freedom from fatigue. Pedal can not be confused with brake. Made of pressed steel throughout. Lists at \$1.25.



The Turner Line also includes: 2 in 1 Carburetor Control, All Metal Visor, Quick View Oil Gauge, 2 in 1 Door and Throttle Lever Extension, in addition to two other timer models—the Turner Junior Timer, all Bakelite, and the special 2 in 1 Timer for Fordson Tractors. Write today for full information.

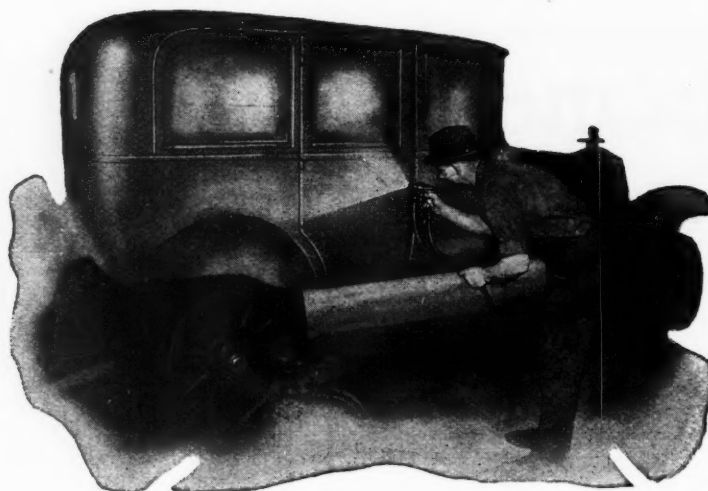
**TURNER MFG. CO.**

Dept. K

Kokomo, Indiana

**TURNER**  
**2 in 1 TIMER**





## *Just this simple wash between success and possible failure in re-finishing!*

**A**S each car, glistening behind its new finish, leaves your shop, how *sure* are you it won't be back in a short time rejected!—showing finger marks, checking, peeling—the prey of the universal destroyer—Rust!

For no matter how carefully you prepare a body, no matter how long and hard you rub, you do not reach rust stimulators that are active in the pores of steel and aluminum—unseen—yet at work after a finish is applied.

There is a way, now, to be sure—the way 90% of the car manufacturers are preparing their bodies for the

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Have you tried it? Without obligation, we will send you without charge, enough to prepare one car. Fill out and mail the coupon *now!*



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Windsor, Ont.

*Protect the Paint That Protects Your Product*

*free!*

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Please send me one of your free samples of Deoxidine, enough to refinish one car. It is understood that this will not obligate me in any way.

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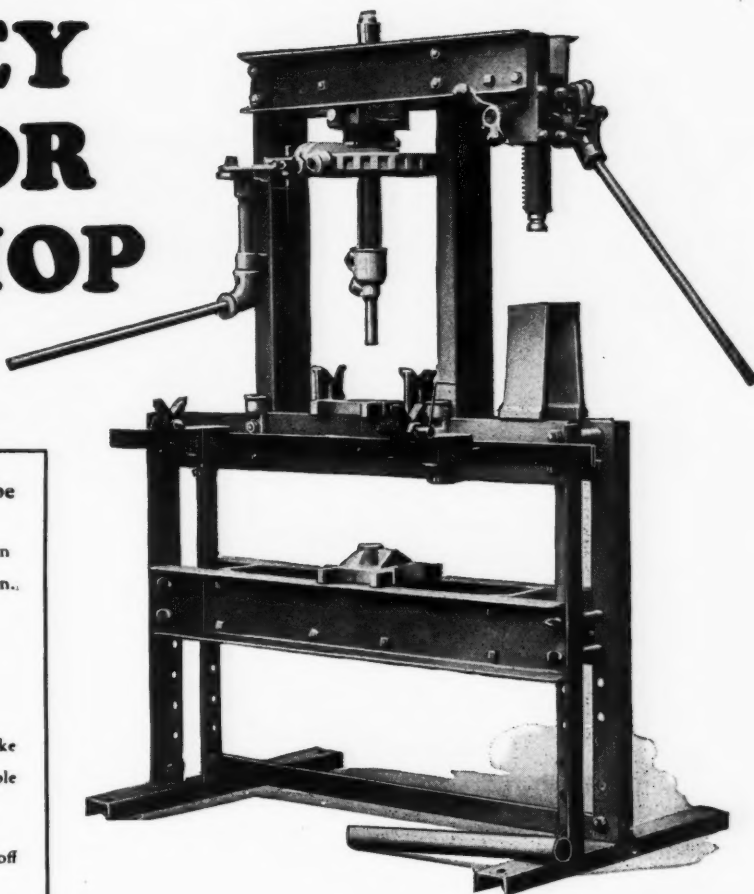
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# DEOXIDINE

REG U S PAT OFFICE

# A MANLEY PRESS FOR EVERY SHOP

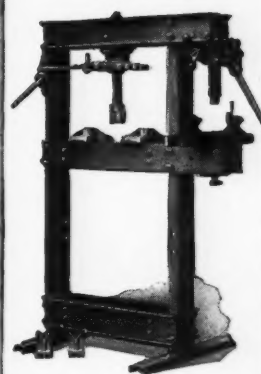


## 21 Operations on the Ford car that can be performed with a Manley Press

1. Pressing steering spindle body bushings out and in.
2. Pressing steering arm bushings out and in.
3. Pressing lower steering column bushings out and in.
4. Straightening steering drag link.
5. Straightening front axle.
6. Pressing wheel hubs out and in wheel.
7. Pressing timing gear off and on camshaft.
8. Pressing timing gear off and on crankshaft.
9. Pressing gear off and on generator.
10. Straightening camshaft.
11. Straightening crankshaft.
12. Pressing piston pin bushings out and in piston.
13. Pressing bushings out and in transmission brake drums.
14. Pressing bushings out and in transmission triple gears.
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16. Straightening rear axle shafts.
17. Straightening rear axle shaft housing.
18. Pressing drive shaft pinion roller bearing sleeve off and on.
19. Straightening drive shaft.
20. Straightening drive shaft housing.
21. Pressing spring hanger bushings out and in.

## 12 REASONS WHY THE MANLEY PRESS IS PREFERRED:

1. Excess capacity: Manley ratings are very conservative and all Manley equipment has a much greater capacity than the Manley ratings indicate.
2. Exposed screw: The Manley Press is arranged so that the end of the screw is exposed and the Press is designed so that you may jar stubborn parts loose by a hammer blow on this exposed screw end, giving the effect of as much as a hundred ton straight pressure.
3. Open construction makes it possible to handle work of any length.
4. Extra wide clearance on lower table (42 inches).
5. Double table saves time adjusting table for work of different heights, long nose and short nose supplied with Press, this also saves time adjusting for height.
6. High speed Rack and Pinion Press Attachment. Two men can work on this Press at the same time.
7. Hand wheel mounted on ball bearings.
8. Hand levers in most convenient position, enabling operator to keep eyes on work.
9. Quick change of leverages and speeds.
10. Correctly lubricated.
11. Designed by R. E. Manley and guaranteed by The Manley Mfg. Co.
12. Price \$100.00 without Rack and Pinion Press or Crankshaft Straightening Attachment. With Rack and Pinion Press and Crankshaft Straightening Attachment \$145.00.



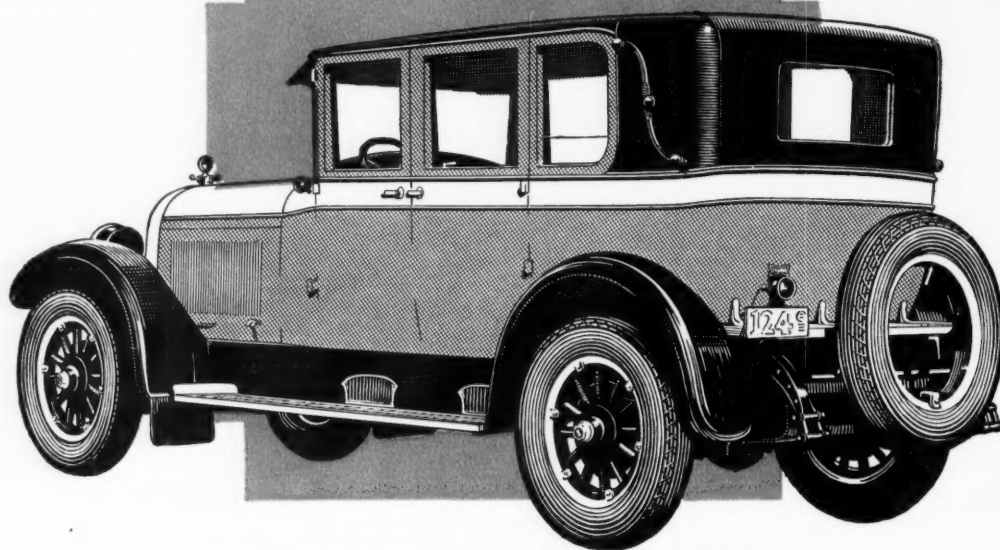
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Buy from your  
own jobber.





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*(The Traffic Transmission is built complete in the Chandler plant under Campbell patents)*

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# CHANDLER